FIELD JOURNAL

ALEXANDER WETMORE

June 4, 1917 to June 9, 1917
DEC. 13, 1917 TO JAN. 4, 1918
MAY 15, 1918 TO DEC. 3, 1918.
JAN. 14, 1919 TO MARCH 7,1919.
MAY 15, 1919 TO JULY 26,1919.

June 4, 1917, Monday.

Left Washington this afternoon at 3:05 P.M. via Washington & Southern Railroad under orders to proceed to Warrenton, N.C. and then to Arcola in the same state to investigate reported damages of does to growing crops. Very hot in the Union Station. The Confederate Veterans are convening for a convention and the concourse in the station was crowded.

Came south through Richmond and Petersburg, Va. to Weldon, N.C. All of the rivers, including the Rappahannock, James and Roanoke were much swollen though apparently little rain has fallen in the country hereabouts. Below Quantico I noticed what I took to be Pinus taeda replacing P. virginiana and below Richmond it was the dominant pine. On the southern & eastern banks of Aquia Creek was a very dense stand of heavy lowland timber that might repay field work.

Below Richmond the country was level and flat. well cultivated though. patches of timber interspersed and these were junipers and honeysuckles along the hedgerows.

arrived at Weldon at 8:51 P.M.
As it was doubtful that anyone could meet the train at the Junction point for Warrenton I registered at the Terminal Hotel. Cool and pleasant this evening.

June 5, Tuesday.

Was called at six, shaved and had breakfast and then left for Warrenton Plains via Seaboard Airline R.R. at 7:10. At Weldon I saw English Sparrow, Yellowthroat and Red-winged Blackbird. What I took to be Phragmites phragmites was growing in a slough near the station.

The country toward Warrenton was level through rolling. The heavy timber had been cut off leaving only parts of the original pine covering. Apparently lumbering is still going on as I saw loads of timber on cars on side tracks. The country is well cultivated though very dry and crops apparently are not doing well.

I saw Purple Martins at Vaughan No Doves seen. The only other birds that I identified were Mocking birds and English Sparrow. All birds scarce.

Arrived at Warren Plains at 9:23 A.M.

Crossed to Warrenton in a jitney. Fare 50 cents.

Country level, dirt roads but very good. English & sparrows common along the Roads through the country.

Reached Warrenton at about nine and proceeded to get in touch with members of the game commission for Warren County. Visited Dr. W. A. Burwell, druggist and found that he was clerk of the commission. Through him I met Mr. M. P. Burwell, chairman of the commission and Mr. Edmund White a member.

The county law does not protect does but they have a regulation against guns carrying that makes it prima facie evidence that a man was hunting if seen carrying a gun off on other than his own land. Mr. Burwell assured me that this would not apply to me in my work and arranged with the county warden Mr. D. W. Robertson to meet me in Arcola at nine in the morning. Mr. Robertson is serving on registration board today. He will certify to residents in the locality that the work I shall do is

under official sanction. The Gentleman were a little dubious in regard to it at first but were very cordial and friendly. I received permission to collect doves and other birds that were needed.

Arranged with a jitney driver to take me to Arcola.

None of the men with whom I talked knew of any damage by Doves. Mr. Burwell said that doves were abundant. Mr. White said not.

Mr. White said that a cold spell a few days ago had killed some Scotch for him.

Had an excellent dinner at the Walford Hotel, fish peas, lima beans, cabbage, lettuce, hot cakes, white bread, Barbecued pig, fresh canght fish and beef, sliced bananas. price 50 cents.

Many young fellows have come in now for the registration.

Left Warrenton in a car about 1:30 and drove to Arcola. At Grove Hill I saw Mr. D. H. Robertson, Game Warden for a few minutes. He will join me at Arcola in the morning. Mr. Robertson was acting as registrar for the forced registration of the young men. His office was a large box in the balcony of an old store and

his auditors and men for his gobation were gathered all about him.
At Warrenton and nearby I saw the following birds.

Robin common.
Red-eyed Vireo 1
Chipping Sparrow 2
Flicker 1
Red-headed Woodpecker 1
Great-crested Flycatcher 1
English Sparrow common
Blue jay, young ones
Catbird common
Brown Thrasher pair
Field Sparrow 1
Mockingbird 1
Waxwing small flock.
Wood Pewee singing
Chimney Swift "
Buzzard two
Hummingbird one
Blue Grosbeak one
Kingbird "

Arcola is about 15 miles from Warrenton. The country was rolling throughout nearly level and had originally been covered by a stand of Pines Loblolly. All has all been logged off however and only scattered areas of forest are left. The fields were planted to wheat, cotton, beans and peanuts.

No Mourning Doves were seen through here.

At Arcola a crossroad with three

or four stores I learned that the farm of Mr. J. T. Hunter who had made the complaint regarding doves lay a mile beyond so that I went on down there & found Mr. Hunter at home and made arrangements to stay with him & while carrying on the investigations. Auto hire 5:50. Reached Hunter's farm about 3:00 and went out at once to look over the ground.

About a month ago Mr. Hunter put in between six and ten acres of Soy beans. When they sprouted the Doves came in and ate off the cotyledons as they appeared above the ground, destroying so much of the planting that it was necessary to reseed the entire area. This had been done two weeks previously and the new crop was well along. The Doves had not troubled the new seeding to any extent, as Mr. Hunter had kept his children out to frighten off the birds. He shot two Mourning Doves and examined their crops. One he found filled with the Soy bean cotyledons. The other contained a few cotyledons, some corn and weed seeds.

He had another field of soy beans that covered a little more than six acres this I shall call field no 2. On it ~~about~~ between 10 and 15 per cent of the ~~Doves~~ beans were just sprouting or

had not yet come out of the ground.

I spent most of the afternoon in making a critical examination of this field. I found that it comprised 38 rows of beans, each approximately 150 yards long. I examined 17 of these rows carefully plant by plant with the following result.

11 rows showed no damage.

5 " showed one or two plants with one or both cotyledons ~~missing~~ eaten off.

3 rows showed ~~plants~~ one or two plants in which the cotyledons had ~~by~~ caught in the ground and had been pulled off by the growth of the stem.

The damage here to this field is thus very slight. I found a number of plants in which the ~~external~~ distal end of the cotyledons were affected by blight of some sort.

I shot about 5 Mourning Doves during afternoon and evening. The birds are said to feed largely very early in the morning.

Mr. Hunter had tried out a crude method of poisoning with Strychnine and had ~~secured~~ one bird.

Went to bed about 9:30. A thunder storm passed in the evening but little rain fell.

June 6, Wednesday.

Was out in the field this morning by 5:00 while the sun was still hidden by a bank of mist in the east. I spent practically the entire day in the neighborhood of the Soy bean fields awaiting for Doves.

A single bird came in to field No. 2 at 8:45 in the morning and left at once. In the evening two others were seen in field number 1. Doves began to call about 5:30 and continued to call at intervals until about 9:00 when they ceased until about 4:30 in the morning. During the day the males sat high perches near in the tops of the Pinus taeda and as they always choose living trees they are very difficult to observe. These males are very wary. We would call at intervals but when I endeavored to slip up for a shot would take alarm and fly while I was still a hundred yards or more away. Or sometimes the birds flew on tiptoes wings while I was still at greater distance. They ceased calling when frightened once and so were more difficult to locate. During the heat of the day they do not move about at all. At 5:45 in the evening six birds came in from the west and

Regular shot for the day. We found
the nest filled with cotyledons,
the stems of the cotyledons lined
neatly and in groups of four.
The field was [illegible] attacked
the leaves [illegible] the leaves attacked
this again today by Bluebirds. The
field is kept clean [illegible] May
24 Mrs Hunter [illegible] reports the nests
[illegible] watching the field and found the
birds as the [illegible] Thursday [illegible]
abandoned.

Mr. Rogstad and I examined the
field critically and could see clearly
leaves in places indicating the robbery.
We saw several places where the
cotyledons had been picked off apparently
[illegible]. The damage was not evident
though slight. Not more than one
fifth to one third were affected. Robins to have
done some damage. They do not touch
the cotyledons but pick off the
seed leaves as they appear.

All told I saw about ten
individual Mourning Doves during
the day. On other parts the
birds are not overly abundant.

I found the fallen [illegible]
took to be that of a great Horned
Owl. It contained [illegible] remains
of one Sylvilagus.

Crop protected damage by deer
noticed for first today. A

pair of Blue Grosbeaks, some more of
Stone Jim's & Gruhart failed in which
the hawks had killed the second
time & saw them distinctly as
they pulled off the skin. Kennels
and all. Eleven dog attacked
some point near the middle of the
head and took him on to Farm
Kennels from which the head. I saw
a dozen heads in an area 6 by
6 feet that had been attacked.
Over the afternoon I found
some young rabbits & Long-eared
Pine Owls. Heard Jay Bonaparte's Warbler
the first I have seen this
year. Was extremely hot and
impossible to sleep
Left at 7:30.

June 7, Thursday.

This morning I was up at
5:00 and visited the Log Cabin
fields but found no change in them.
Not worked since in the Stone
fields until 2nd June. There
were in a flock and two eight
birds were noted. One of the latter
passed near me and I shot it. It
was a male. The birds were very
wild and flushed at a long
distance. About six o'clock
Dora sitting in the top of a dead

time in the woods [illegible] a mile
away. I walked carefully down to the
cliff at the edge of the woods within
range.

After breakfast I went out
[illegible] shore expecting [illegible]
shore birds. I found a large
area that had been [illegible]
but no birds which scattered [illegible]
as I approached. There were [illegible]
Sandpipers that [illegible] the sun.
A few [illegible] in there. They
called incessantly but when I
endeavored to [illegible] on them
flew with [illegible] wings to other
parts. A pair are [illegible] in
circles about [illegible] a bird
flew up from beside the road and
[illegible] it. This [illegible] very [illegible]
[illegible] for [illegible] [illegible]
the birds [illegible] in their [illegible]
areas and go to the cultivated
fields to feed. As there are extensive
areas left over in a similar
way there is refuge for a good
many birds although they are
scattered at considerable. On
this present case I noted four
birds in one area a mile square
yesterday & extended another that
and got [illegible] the Hunter [illegible]
[illegible] a very [illegible] [illegible].

I marched my troops to

Dr. Jepson owned by Miss Elizabeth Dr. [illegible]
Dr. Hanna [illegible] Prof. Cooper Clarence
Lee had planted [illegible] would use
to [illegible] be a shade tree. [illegible]
Cupressus [illegible] above the ground.
No [illegible] was done.

It is alleged here that the
doves have done damage this
spring but digging up corn as
it was planted. This I have
been unable to substantiate and
consider it doubtful. Today I
examined several cornfields and
found a record of only one
damage. Damage is reported
mostly around Arcata and Bridgeville.
I shot one dove that was walking
about in a cornfield that was
newly sprouted.

No doves were stirring during
the afternoon. About 5:30 a few
came in and I shot three at the
border of a small wheat field. Mr.
Hunter had mowed around this
field yesterday to cut wild oats. A
few headed stalks of volunteer wheat
were cut and these had attracted
the doves. Five doves that I shot
today were all males so that
apparently the females are not moving
with the males at this season.
Today I saw 14 doves and heard
four others calling. As the season

I drove near multiple birds yet both in morning and evening it seemed both Sexes remain about by duplication. The birds [illegible] shot with no 8 shot at distances ranging for 40 to 60 yards. Three were pulling [illegible] to the canal I killed on each flew. The other passed out of range. The first bird that I shot fetched into the water and the other swimming dropped in a small field [illegible] it stood motionless until I shot it. The wounded bird made the whistling noise which I held it in my hand. The wings were moving strongly only though a small area and I was afraid that [illegible] that the male bird would call. All the birds shot had the sexual organs and the size of the testes large. The birds were not moving at all after seven.

The afternoon was intensely hot and flies of various sorts swarmed about victims. A collector is considerably annoyed.

Toward dusk a heavy storm passed. Most of the rain passed on either side of us but we had a fair downpour.

Heard the Chuck Wills Widow calling.

June 8 Friday.

Was out this morning at five A.M. The air was saturated with moisture and all vegetation was dripping. The earth however was not muddy. Had a fine catch up a great deal of moisture. Before the dew came off the heavy fog rolled in and remained until 9 O'clock when it cleared. The clouds came in to the cultivated lands at all times of the night. Many were coming down Sunday in clear days after the rain. Put in the corn inoculated in the shaded spring one row to test it. Stalk corn but yielded success. The shot opened at about 80 yards out of range.

Spent the forenoon in examining specimens received yesterday until 12 M. It rained about 1 o'clock and in large number of insects.

Gave Mrs. Martin directions for preparing starch paste adapted for use in garden

June 9. Saturday

Woke up this morning at 5:00 A.M. and secured one more date. Had an opportunity to go in to Warrenton at ten so packed up quickly and got ready to leave. Mr. Hughes drove me to Oxford and from there drove in to Warrenton with Mr. Weldon Davis of Oxford. Saw two Negro farmers Mr. Green from Hill and Warrenton. This is the fourth for this at this session.

Reached Warrenton at noon, ate dinner and then crossed to Warrenton bus in an auto. The train from Warrenton to Weldon was late but I made connections with the Atlantic Coast Line and reached Washington about midnight 12 and [illegible].

December 13 Thursday 1917.

Went into Pullman at Union Station at 12:30 A.M. Train left via Southern Ry for Memphis Tenn. at 4:10 A.M. & I got up and dressed it seem and I sent most of the forenoon watching birds from the observation car. I had slept nearly all night. The morning was gray and cold and it snowed at intervals still. I saw ~~some~~ some birds from the train in this section ~~that~~ I have seen in other States.

Crows first appeared at 7:30 A.M and by 7:45 were abundant. They were evidently coming out from some large roost. At first small birds were seen flying along but later flocks of 50 to 100 were noted. From Bradentown to Gulfport all the birds seen were passing directly east. Near Gulfport the flight changed and from Gulfport to Mitchell all birds seen flying in a general direction south. So that the roost would seem to lie a short distance south of Gulfport. The birds were feeding in cornfields when the corn was in the shock, in cut over cornfields and about feeding lots. In one place a large number were seen about a dead carcass in company with Buzzards. Others were in searching in Orchards.

A migrant shrike and a cedar

were seen at Culpepper, A Sparrowhawk and a Buzzard were observed at Tabo, Va, and two flocks of Prairie Horned larks, about 30 in each, seen a short distance west of Lynchburg. Meadowlark & Juncos seen in this same region. Crows were abundant all days.

It snowed more during the afternoon and at Lynchburg there was at least six inches. The scenery here was fine against the newly fallen flakes and as the sun was obscured, there was no glare to tire the eyes.

The train kept rather steadily all day. The train was crowded to an extreme and it was with difficulty that I obtained Pullman accommodations.

December 14, Friday.

This morning I was up at seven and found that the train was still some distance east of Huntsville, Ala. The ground here was covered with snow and snow continued to Memphis. The country at Huntsville was mountainous with fertile valleys. Sparrowhawk, Mockingbird, Migrant Shrike, and Fox Sparrow were observed. Huntsville, a crow was first seen at Tennessee River but comparatively few were noted during the day. West of Leighton, Alabama the Mourning Dove, several flocks of Meadowlarks, a Red-tailed Hawk, several Shrikes and Crow were seen. Near Grand Junction a Bewicks

Were peaceful in 2 saw wreck
Arrived at Memphis at 4:00 P.M.
Seven & one half hours late. After securing
Pullman accommodations I walked
down to the Mississippi. The
main channel was closed by
ice and floating ice choked all
up in the harbor. Cracks ran in
the ice here & there certainly thou
Horned larks flying. The birds
themselves were not observed. A
blackbird, two ducks not identified
and a flock of Bronzed Grackles
seen flying above the River.
Left Memphis via C.R.I.&P.
at 11:40 P.M.
Had the misfortune to lose 6
transportation requests in station at
Memphis. Apparently they must
have caught on my clothing &
pulled out my pocket. Arrived
after I lost numbers of lost
requests A 19666 15 - A 19666 20
inclusive.
Very cold & raw tonight.
December 15 Saturday.
Arrived at Little Rock 3:55 a.m.
Pullman was jammed again last night.
At Little Rock I went to the Marsh
Hotel but was unable to get accommodations
the town was full of Officers and
Soldiers. Little Rock is out of Coal
and is suffering from a cold wave
that is reported to be the most severe

Since 1859. The streets were packed with snow that melted only a little during the day. Street cars were able to run until 5:00 and then stopped until noon & ran at irregular intervals.

I called Mr. E. V. Vicart, 2719 Gaines St. He is a surveyor man in yards protection and went out to see him about noon. Had to take a taxi as no cars were available. Mr. Vicart is laid up with a badly scalded foot so that he is unable to walk. He desired to make a trip to Stuttgart with me but of course I told me that I would not permit it as he was in no condition to travel.

He gave me names of men to see in Stuttgart and Dewitt. And also arranged with Mr. Hitth of the Game Commission to have a permit to collect birds sent to me at Stuttgart.

Mr. Vicart told me that usually the rice harvest here was over before November 1. This year however the harvest was delayed until later and cold weather brought down thousands of ducks before the crop was in. Mr. Barry near Stuttgart reported that he had lost one entire field by ducks coming in to feed. Others made similar complaints. Because of this local hunters were told to go ahead and shoot without regard to bag limits. This was sanctioned by local hunters and putting stimulated

was denied by the game Co—— on account damage they had reported near Hewitt, Ark. While hunters near Gillette took advantage of the license granted to kill a large number of birds. Mr. Vicart gave me a list of men to see and then went down & left him.

Arranged for baggage transfer and after lunch walked to the judge, John W. Allen of the Federal Land Office. He confirmed. and knowing the damage to rice only from hearsay told me that Mr. Perdy of Hewitt had lost his crop and that Mr Casey of Stuttgart had lost about $10,000 by damage by ducks.

Left Little Rock via St. Louis & Southwestern at 3:35 P.M. The Arkansas River at Little Rock was frozen and I saw no men skating on it.

Arrived at Stuttgart at 6:30 P.M. Secured accommodations at the Price Hotel.

December 16, Sunday

Went to bed last night at 8:30 and slept through until seven this morning, awoke feeling much refreshed. The trip across from Memphis to here was broken and I could so that I had had little sleep for three nights.

Called Mr. John Ingram, attorney by phone last night and he promised to come in and see me this morning.

Spent the forenoon in writing notes and letters.

Mr. John Ingram came in about two P.M. and I talked with him for about an hour regarding Birds damaging rice. Mr. Ingram told me that rice culture began here about 14 years ago and that it had been a steadily growing industry ever since. At present there are three rice mills in Stuttgart and not far from 2,000,000 bushels of rice are produced in the region tributary to the town. Mr. Ingram himself planted the first grain of rice grown here but I died it merely as an experiment and did not continue. He is an attorney and is not interested in Agriculture in a personal way.

According to Mr. Ingram Blackbirds each year do a considerable amount of damage to all rice growers. The rice is harvested here in October usually and these birds come in great flocks to feed in the fields. By the latter part of the rice is cut. Then the Red-winged Blackbird and the Boat-tailed Grackle are principal. No attempt is made to drive these birds from the fields save in occasional instances when shooting is resorted to but without much success. Mr. Ingram says that this

past year. The rice harvest was late and that when cold weather came enough of the crop was still in the field. Ducks came in at this time and Gunning became on at this town to as 10 acre field owned by C. J. Berger of Stuttgart. Mr. Charles Spicer of this city. The rice was estimated at 5000 bushels. The birds appeared from all directions. Hunters came in at night the last and left the field before daylight. Attempts were made to drive them out without by shooting without success. Neighboring fields nearby were not touched.

Similar damage was reported by Mr. Charles Spicer about twelve miles south of Stuttgart. Mr. Spicer found that the ducks by thousands and that it was his opinion that the mallard ducks became more than the ducks did this. Damage by ducks was not so heavy as other years and seemed due to the condition of the harvest. Called Mr. C. J. Berger but learned that he was out of the city and would not return until the first of next week.

About three I walked out from the hotel to get a little fresh air.

has a population of 4000-5000 and by walking seven blocks east I came to the edge of town. There were many weed grown fields here and a little strip of timber. In two blocks here I found about fifteen species of birds including one Red-tailed Hawk one Marsh Hawk and a Barred Owl. Individuals were very abundant. In town I saw what a Shrike had hung a House mouse in a China-berry tree. (Melia azedarach)

Though cold for this region it seemed mild and pleasant to me. There is about an inch of snow and it is thawing a little.

About 4:30 I went in to see Mr. Clyde Pettit, an attorney and there met Mr. Wingo, attorney and Mr. W. E. Michael attorney and W. M. Pettit a well driller. These gentlemen gave me a considerable mass of information and stated that some damage by ducks had been reported last year.

The greater part of the damage this year was then reported from a region known as the Mud Island District. Mr. Barge (mentioned above) was reported to have lost 80 acres of rice ~~from~~ at least 70 bushels to the acre. Neighbors reported damage

to him and he sent a man to [illegible] Stuttgart to [illegible] and shoot at night to drive the birds off. The Local Game Warden heard of this and was highly indignant. He took steps to arrest the [illegible] of the men responsible with the idea of having them arrested for night shooting. He going personally to Mr. Boggs [illegible] the damage done by the ducks and dropped the case at once.

These gentlemen told me that at a place called by The Walton Land & Rice Co., Mr. Crandall Manager, [illegible] from DeWitt that there was still rice in the fields to be threshed and that if the weather did not moderate so that it could be handled soon that the ducks would have most of the grain eaten.

They also reported damage near St. Charles, Ark. On farms of W. H. Norsworthy, and W.G. Walton. Damage was reported here last year.

General damage by great flocks of Blackbirds was reported Jaligo.

On the evening Mr. Dingo (Both of Representative Wings of Ark.) brought in Mr. Alfred Cummings of Kagler between DeWitt and Stuttgart. Mr. Cummings is a Rice grower and in addition has a threshing outfit. He told me that

this year he secured 21,500 bushels of rice from 330 acres of ground. He finished his threshing by November 15 and believed that his loss through damage by birds was very slight. He said however that he threshed for people who had had losses from blackbirds. In many cases much of the grain would have the heads hayed out when the birds had been working in them. He estimated losses as high as ten bushels of rice to the acre in some cases. He said also that losses were heavy in spring. In planting the rice was first soaked and then sacked in order to make it germinate quickly. Great flocks of Red-wings came in and pulled the sprouting grain and eat it. When the crop is near ripe the damage reported is the greatest. When the grain is ripening the stalk was broken off at the grain it would not stand up and many times the birds ate the grain. The Sea-gulls he told me that [illegible] a pound, and made a fine chase. Crabbing is a big business to kill them. He reported to shooting the worst damage came to the early plantings in April. Plantings after the first of May are little damaged. This is probably due to

the fact that we have in Louisiana in April but have before they come in [illegible] by the birds that [illegible]

We said yesterday that rats (from his description Rattus norvegicus) caused serious damage to [illegible] crop by pulling the sacks but that this was no damage by rockets to rice in the field.

"Rice maggots" and [illegible] "Larvae of Rice weevil Lissorhoptrus simplex Say" black bugs were serious pests. The rice midge [illegible] appeared when the weather became [illegible] and the black bug when the soil was dry.

Mr. C[illegible] said that was getting rice to [illegible] a place owned by the Mayor of New Orleans called Carondelet on the Bird Plantation [illegible] Stuttgart and Dewitt.

Following is list of birds observed at Stuttgart today.

Cardinal several pairs.
Song Sparrow - common
Swamp " one in wood path.
Carolina Chickadee - two
Tufted tit one
Downy Woodpecker one
Red-billed " one
Jays 25.
Red-shouldered Hawk one.
Fox Sparrow - [illegible]

Rusty Blackbird - Flocks of ten to 25 seen in several places in outskirts of town.
Bronzed grackle - several flocks - 10 to 15 seen.
Meadowlark - Common at outskirts of town.
Mallard - one single bird & a flock of 50 seen from hotel windows, flying north.
Golden-crowned Kinglet - Two
Barred Owl - one in edge of town.
Chewink - Several. One seen in top of tree calling towhee somewhat in the same tone as the call note of a Waxwing, pitched thin & high. Do not recall having heard this note before.
White-throated Sparrow - several
Carolina Wren - Two
Marsh Hawk - One adult male at edge of town.
Flicker - one
Shrike - House mouse seen hanging on crotch of tree.

December 17, Monday.

This morning about eight o'clock left Estherhazy in a Ford Car & was driven south in what is known as the Mud Lake land district and toward Hagler. Returned to town at four having covered about seventy miles in visiting nice fields. Their damage was repaired [illegible] in intervening prominent nice groves. This region there is [illegible] land as far as the eye can reach with no elevations in evidence and no undulation of the surface. This land area is very extensive and is largely open. Occasionally stretches are varied by small areas covered with oak, ash and [illegible] timber that marks the course of water courses. The largest of these to the south of Estherhazy is known as the Big Muddy (designated on Big B. M.). These stretches of wood afford relief to the prairie. The prairie at Estherhazy is known as Grand Prairie and stretches away [illegible] Dauphin. The prairie here is [illegible] Manitoba.

The greater part of the region is given over to the cultivation of wheat. Water is found in wells over the greater part of the region at depths varying from 150 to 1700 ft. The level fields are marked off by ditches and irrigation water is [illegible] from the wells by steam [illegible]

quantities are used. The following
steps covered. Much more could be made
in this culture, and but little else
of importance is found in the
line of crops. Great stacks of rice
straw left from the straw stacking
gave employment in gathering rice
to the rice mills. Because
of the high price of jute sacks - 21 cents
each - the majority were hauling in
wagons with 24 - 28 inches sides
of joined planks and a tight bottom.
Despite all these precautions grains of
rice still in the husk were dropped
all along the road and Meadowlarks,
English Sparrows and myriads of
Baya & Bronzed Grackles were gathering to
feed on it.

Birds were very
abundant. Though only 25 species
were recorded the number of
individuals noted was very large.
The species recorded were nearly all
birds of the open as in only one
spot did we travel for a short
distance through timber. Following is
an annotated list of those seen:

Savanna Sparrow - abundant along the roads and
through the fields. About 200 - 300 seen.
Song Sparrow - fairly common - a dozen seen.
Meadowlark - common. 300 seen. Birds were feeding
in the roads where they were apparently picking
up rice grains dropped from the wagons. Many

would barely get out in time to escape the car and the birds seemed as tame as English Sparrows. They were silent.
No flocks containing more than a dozen birds were seen but single individuals were scattered all along.
Rusty Blackbird. Present in enormous number. I estimated that 30,000 to 40,000 were seen during the day and the true number may have been in excess of this. Two flocks each estimated at 8000 to 10,000 were noted and smaller flocks containing from 25 to 200 or more were found at short intervals. These birds fed in the rice stubble and also flocked in the roads to pick up grain scattered from the wagons. This species was in sight constantly. These birds eat the rice that they eat.
Bronzed Grackle. About 10,000 to 15,000 seen. These birds were scattered along in flocks containing from 10 to 200 or 300 individuals, and fed in the rice fields were cut over or gathered in the roads to pick up scattered grains. Occasionally this species and the one preceding were seen in mixed flocks but usually they were separate.
English Sparrow. Common all Through the country about the houses and scattered in flocks along the roads when they were picking up fallen rice grains. About 4000 or

Quail. 2 in one flock.
Mallard about 5000 Mallards seen today. South of Stuttgart about 800 were gathered in some Rice Stubble where they were feeding on fallen rice. I drove these birds out when I walked in to see if any other food was available in the field but one hour later they were back again. Flocks were seen all during the day flying north steadily.
Pintail. One drake seen with a flock of Mallards.
Migrant Shrike. 1 in seen.
Lapland Longspur. 30 seen in the Borge place in rice stubble.
Buzzard. 1 seen. For lack of better perches these birds sat on fence posts. They were very tame and at times did not fly as the car passed.
Red tailed Hawk - 1 in seen.
Marsh Hawk. Three immature and adult. Impossible to approach as [illegible] would always [illegible] a flock of [illegible] and another 30 seen going north.
Hairy Woodpecker one.
Red bellied " one.
Carolina Wren Two
Meadowlark one
Pipit 6 in in rice stubble.
Cardinal. Along one hedge row a flock of about 20 in a short space. 45 seen all together.
7 or 8 pair seen eight.
3 Bronzed Grackle seen

Ruf Shouldered Hawk - eight.
Carolina Chickadee - two
Junco - two
Chewink - ten.

We drove from Stuttgart 10 miles South to the Grand Island where Grange in Duck Lake Resort is located. This is a small island of [illegible] acres. About 40 acres of this are in cultivation. The rice crop was cut and put in shock and there was perhaps 15 and 20 acres of it left standing. The Mallard ducks began to come in here to feed. For a space of from three to seven days the entire crop was ruined. About thirty men came down from Stuttgart and attempted to keep the birds (all Mallards) out by shooting but this attempt was not successful. The birds that had been feeding all day would come in at dusk and stay till daylight. From Mr. Griffin, a reliable resident and a close friend of Mr. Grange it is learned that the birds came literally in hordes, those within a few yards could hear it a short distance. Would fly about 4 feet high and very close. Mr. Griffin said that Grange sent letters to the men that were worth $2.00 a bushel. Attempt was made to thresh part of this rice but 20 cattle soon remained that after half a

day it was given up, as the yield was less than a gallon to the shock.

On examining the field critically it was found that the upper two thirds had been touched by frost so that about half of each head had failed to fill. On the rest of the area however the stand was heavy. The variety was the variety known as Hadaway. It was ripe to within [illegible] of the shocks in the field had been pulled when by the frosts in fooling and in a few instances the sprouts were actually [illegible] out. Practically all of the grain was gone in all of the shocks and what was left was not worth threshing. A few heads that had matured and [illegible] were found on a few heads that had not been injured. Also took samples of heads affected by frost. The [illegible] heads had [illegible] of the shocks [illegible] had developed up into them [illegible] Many [illegible] the many cords [illegible] paths were made around the shocks. Where [illegible] shocks. Here [illegible] duck [illegible] sitting about on the shocks and about them. In some places the ducks seemed to have [illegible] for some time judging from the odors. A sample of [illegible] was taken and on [illegible] examination it was found

Cn made dep entirely of rice hulls.
~~When mixed shortage of corn refunded.~~
This failed in the test was found
Considerable moisture and [illegible]
[illegible] to mold. Thing best
the reason.

Drove final line to the farm
of Mr. Charles Spicer N. of Jamestown
the way out at this time.

Called next at farm of Fred Klein.
Mr. Klein was out in the field
on his grain binder was not at
home suffered no damage from the
recent rains.

Went next to the farm of H.
Y. Young where we had dinner. Mr.
Young had had no damage from birds
to his rice crop. He told us that
sometimes in spring when the
rice is coming up there
were a number of blackbirds (Redwings)
sometimes come in and [illegible] fields
but were driven off. These birds for the
most part have left this locality.

Leaving here we ordered [illegible]
from [illegible] by J. F. Little over Naylor.
He reports that [illegible] December 4-7
Prof. Franklin shelled about 200 ears
of rice for him which the grain was
still in the shocks. He attributed this
in part to the fact that his fields were
[illegible] by deer and [illegible]

Bonneau ↑ resting places when they were not feeding. ↓ If we had not been back in getting his threshing done he would have had no loss. He reported no damage by ducks and stated that birds had not troubled them in Spring.

John B. Rhodes ~~was~~ ~~an~~ ~~adjacent~~ ~~farm~~ ~~reported~~ no damage.

Ralph Rhodes had lost about 1000 bushels of rice in a field about 1½ miles from the Bonneau farm. I did not see Mr. Rhodes but talked with his wife and received the details from Mr. Spicer. This field was farmed on shares by the Jensen Bros and they estimated their loss at 2000 to 3500 bushels. Mr. Spicer said however that Rhodes claimed only 1200 bushels loss. Mrs. Rhodes said that they had suffered to a slight or not from ducks this previous year. She claimed no damage from Blackbirds.

Mr. Otto Jensen, brother of George Jensen who owned the farm, told me that in part the field next door from the Rhodes field that the crew in at night had destroyed the ducks while threshing was going on. The loss here would have been much severe but the field was cleaned up by the threshing crew on the following day.

He reported no damage by Blackbirds and said that ducks had not troubled them in other years

At the farm of Henry Jensen I found about 40 acres of the rose hips still in the bush that had been heavily damaged. The field contained 50 acres, 10 acres near the road and the fence rows had not been molested but 40 acres had been attacked. Below this field was another containing 105 acres that had been killed except a few feet where it started and 10 feet not touched. On the 40 acres I found the chicken feathers in the air as if they were shaken from a pillow sack. There was evidence of many hens. The chicks and mallard ducks had evidently left the chicks and been killed and eaten, only their feathers remained. Mr. Jensen estimated his loss at $1/2 of the crop and certainly $1/3 of it could be seen on the ground. The chicks, in hiding, had found a refuge around the buildings where not harmed. Mr. Jensen moved to work and left me the field. In the fields in Strawberry about 50 acres of the bushes showed damage. Broken twigs and pieces were found in many of the fields. Mallard feathers were also found about here and I saw Canada Geese flying all of it compared to

nice hills. Part of the damage here is due to Blackbirds & [illegible] places where the grain had been headed.

Part of the corner of the field containing the 105 acres [illegible] above, also was damaged by [illegible] as that 1/4 of the total loss in this field is to be attributed to this factor.

The [illegible] had been truly [illegible] damaged and undamaged heads.

On this evening Mr. Charles Spicer came to the hotel to see me and we talked for over two hours.

Mr. Spicer said that he had 30 acres of rice in strip and 15 acres in another in a field across from the Bruce place, in which [illegible] had been damaged somewhat by ducks. He did not know what the actual damage was as it was reported to him by his son and he had not seen it himself. He said however that he believed the loss to be slight.

Mr. Spicer has been in for eight years. About 6 years ago heavy rains set in before my rice was cut and continued until winter. This year ducks came into some of the [illegible] fields and did damage on [illegible] acres. [illegible] the previous [illegible] was known.

Mr. Spicer stated that Blackbirds (a)

grackles, English & [illegible] sparrows & a "Red Bird" [illegible] "Red Bird" (Cardinal Grosbeak) picked up rice in the fields around in the fields. For this reason it was necessary to take care that the grain was harvested as rice [illegible] as [illegible] [illegible] [illegible]

and across not more than five miles long. No game heard of outside of this strip.

December 15, Tuesday.

Was up this morning at 4 a.m. After breakfast I went out for a couple of hours in a strip of timber bordering the river. This is composed of willow oak, post oak, White Oak, Ash and Shag bark hickory. I saw some mistletoe and sassafras, sweet gum and a few cedars. Leaves were common.

It sprinkled a few during the morning and then cleared and warmed so that the snow was melting rapidly. It rained practically all night and until 8 this morning.

Birds were common.

I collected insects under Nutt's bark, securing Platinus beetles and large Hard Thrips.

Following is list of birds

Red Bellied Woodpecker - 75.
Barred Owl - 20. Three birds were seen feeding in small trees. They were able to swallow entire white Rats, mice etc. Quietly in Tree and Shelled.
English Sparrows 25.
Cardinal 4
White throated Sparrows 10.
Tuesday 12.

Bronzed Grackle 1
Red-bellied Woodpecker 1
Chickadee (Carolina) 4 one taking.
Canvas 20
Mallard 200
Ring Necked Duck 4
Lesser Scaup 4
Sparrow Hawk 1
Golden Eye 6
Hooker 2
Geese 75
Fox sparrow 2.
Swamp Sparrow 1
Bluebird 1
Canada goose 22
Ruby crowned Kinglet 1
Field Sparrow 1
Song " 1

Returned to Hotel about eleven bought a few supplies and then repacked and rearranged my outfit.

Left the office in writing up the notes secured yesterday. Left raining a little more and then more and harder and clear.

Left for Dewitt via St. L. S. W. at 6:55 P.M. arrived at 8:00 & registered at Sparks Hotel.

December 19, Wednesday.

Was up at seven this morning and after breakfast attended to some correspondence about mine & got hold of some rice growers got a line on the areas where birds had been damaging crops and made arrangements to go out in a Ford Car at 12:30.

At noon as I had an hours to spare I walked out through the town into the woods. Merritt is located in a wooded area of oaks Hickory and ash is at 8 altitude. I saw some mistletoe, a little cane and some gray moss. Returned to town at twelve.

In the afternoon I drove about 20 miles or more in the region south and southeast of Merritt, visiting rice farms and looking at damaged field.

Following is bird list for day.
English Sparrows common in town & about farms.
Blue jay fairly common.
Red-bellied Woodpecker six seen.
Cedar Waxwing Two flocks seen one of 12 & one of 25. Judging on specimens.
Myrtle Warbler two seen.
Carolina Wren three seen.
Short-eared Owl one
Downy Woodpecker five.
Carolina Chickadee four.

Rusty Blackbird. About five hundred seen.
Ducks are abundant there at Chatham.
Scattered about in small flocks through the
fields and along the roads. Four shot
were all adult females. Others were got.
Flicker Common.
Spotted Sat. Thrush
Hairy Woodpecker one
White-breasted Nuthatch one
Song Sparrow three
Bay-winged three
Bluebird two
Geese about 75 seen.
Marsh Hawk 4
Goldfinch one
Sharp-shin 2.
Red-tail 4
Broad-winged Hawk one.
Pigeon Hawk about thirty seen.
Sparrow Hawk about fifty seen. Both
Sparrow Hawk at Chatham fifty
Red-shouldered Hawk 1 do.
Mallard about 2000 seen. Flocks were
flying constantly through the day
seen feeding in the stubble
fields where the rice in shocks had
been threshed.
Teal. One with a flock of Mallards.
Duck (Wood?) three.
Spotted Sandpiper 1.
Cardinal one
Fox Sparrow one
Redwing. Four. Four hundred Tree Sparrows

[illegible]
[illegible] to [illegible] [illegible]
[illegible] U. Corps [illegible] with [illegible]
Cornbread [illegible] and [illegible] [illegible]
[illegible] make [illegible] [illegible] shot. Crop [illegible]
packed completely with rice.
Crowded [illegible] about ten [illegible] [illegible]
shot had a small [illegible] of rice in
throat.

Monday Dec. 1st 1919

The day was clear for the greater part of the time, though clouded over for short intervals. It has turned much warmer and I rode all day afternoon without an overcoat. The country here is level but is more rolling than at Stuttgart and we passed several "Lanes or "Slashes" as they are called here.

Though much rice is grown here it is not the entire crop as near Stuttgart. I saw many fields of corn and of wheat and was told that peanuts were grown. North of town there is considerable cotton. Dewitt has a cotton gin and a rice mill.

Ponds along the roadside were covered with an inch or more of ice but there is no snow. Where the roads were well drained they were dry but we came to many bad mud holes.

We drove first to the farm

of Park Moses about 3-4 miles from town. Mr. Moses had a field of 110 acres of Blue Rose Rice in which he claimed a loss of 2000 bushels and this seems a reasonable estimate. This was a field of late rice and the shocks were all frozen in the ice. Ducks came here in hordes about Thanksgiving time and got in droves in the fields. The entire amount of grain was destroyed in about a weeks time and much of it was taken in one night. As the shocks were frozen in only a few were pulled down but many had the cap shocks displaced. The birds had cut outward entrances in the sheaves at the sides of the shocks in many cases and there was fielded down and trampled in all around. Ducks (Mallard) were scattered all about and in considerable numbers. There was considerable damage to the stubble also considerably ice had been in the fields. (see below)

[illegible] visited the farm of [illegible] Co. [illegible] and [illegible] 1925 crop damage [illegible] Black Bird. Red [illegible] were working on about forty acres [illegible] the [illegible] shocks in

each shock had been stuffed as
is the Mexican field.
— At Mr. Wood's place with
a Ford chassis had been stripped of
all gears leaving only the clutch.
The pulley was run by a long belt.
I was able to get some pictures here:
Mr. Wm Simpson claimed to have
lost at least 5000 bushels of rice
on his own land — between 100
— 125 acres. Mallards came in
myriads about the middle of
November and shattered the
entire crop in the field. When he
was able he started in to thresh
this out and only finished some
fifteen loads. So great and deep
was the shocks in the fields. The
ducks came in about nine
each evening and left before dawn
Let his irrigation about 15
Men came down here to shoot
and killed many ducks but
without great success in killing
the birds out.
I visited this field after the
ducks ceased feeding it and found
the shocks in the field so stacked
that at least 50 per cent of the
rice was still to be gained by
running the shocks and did
not stack long.

bean fields and Evansfield ground, all were [illegible] the old is practically all gone except on the outside of the shucks head being taken off. A Robin Hood decoy has been to Edwood Sta Mallards and to Blackbirds in equal parts. About the basis of about 4 to 6 to quarts of rice hulls were scattered and among like that Blackbirds was scattered all through this.

Mr. [illegible] Spillman said that he had been working in the field near the middle of May he found a small number. About ten days ago he came in on my Lake Forest Stock of Blackbirds that he had pulled the 2 by Corn with. Men were spaced in the field to a post and did some good last Sunday twelve men were shot in the field and guess they the field was plumbed to Mondamin [illegible]

Besides these [illegible] places damage was done to W. A. S. but the head finished threshing and all the damage was done. No estimate was placed on the damage here.

The Walton Rice and Land Co.,
M. Crandall Manager Colt
considerably grain on 40 acres
from ducks and Blackbirds I
saw this grain from the road
but could not get in to it
because of water.

We were met by the foreman
of Mr. Colt's ranch and I learned
from him that the Chinese
laborers [illegible] got nothing
for their crop if [illegible]
to pick it for the use of the
grain [illegible]

It seems that
the rice is cut early and
then [illegible] very late in getting
this rice cut. When cut there
is [illegible] has been put in the rice
stacks [illegible] so that it seems that
the [illegible] in the crop does
[illegible] a decrease of the
[illegible] in threshing [illegible].
The threshing machine
threshing [illegible] when we
called [illegible] fall set in about
the [illegible]
number of fields in which rice
was still [illegible] the
color [illegible] there [illegible]
of Mallards and Blackbirds

down from the north and then came in hordes to the fields destroying the grain. It drew to fields 20 Diameters this afternoon and from reports there seem to have been about a dozen in all. The resulting damage will run between 12,000 to 20,000 bushels of rice valued at $24,000 to $40,000.

All those who got their rice crop in before November 10 sustained no loss.

To prevent this damage why rice is late the grain should be stacked in circular stacks with the heads to the center so that the butts of the leaves only would project. This would be expensive. But would save in the long run as the grain would not be injured. Not to short of present [illegible] so that it would be difficult to accomplish this. Mr. McMillan said that storage bins might be built. There seem to be few rats per so that they would not touch.

One reader had success in keeping the ducks out by using tobacco and dogs all night. Saw one flock containing a few Redwings and Cowbirds

Cooley. A shot of Buchanan, then Constable, a profile and of Finch Blackbirds feeding near The Constable head. His throat cut. Diamond profile again, Phil Fakkema and the Dept. Security Lieut. Bill Jones profile with a little cyclist. The Thumb of the Early Blackbirds cover Carolyn.

Return of Finch at 5:30. Diamond of Buchanan and removal of Stockpiles and Corpse from Blackbirds Thus ending P.V. Sequence. Title of New Sequence Then was a Change in Blackbirds which the Fire is still in the air. They also ate some Corn in Effigy of Company Towns and Symbolic Thanksgiving Dinner Attacked.

Mr. W. C. Woodson Superintendent of Overall Division of Chicago Area for 25 years. Retired from the Corporation to Devote his Time to Civic Affairs. Died in his Office. Mr. Woodson was Chairman of the Board of Directors of the Overall Corporation at the time of the Overall Factory Strike of 1919 and Factory Fire in the Plant.

Daughter of Woodson asks to

some damage in granaries where they were able to enter.

December 28, Thursday

This morning I was up at sunrise. About eight of had an opportunity to ride out to the little bayou three miles north. Got out mule and followed the stream back to town a distance of five miles. The bayou is at creek 12-20 feet wide and one to four or five feet deep, with a winding course and the stream bed heavily blocked with fallen logs. All along its course was all heavy timber of elm, sweet gum, hackberry, cottonwood and similar trees. Some of the elms must have been 90 to 100 feet tall. One enemy of its inspects. This reminded me of the bottom timber in Kansas. It was considerably growth of same in place but more of it was large. In the afternoon came up to eight but left early for bear hunt. Did not talk place in the forenoon. Capt. K was ready for early hill. Miles saw some Negro men.

Birds were abundant in this

fine growth and it was abt
at last 40 years.
Willow Warbler. 19, feeding in top of
trees.
Carolina Wren 9. singing. feeding in
trees bushes and thick in low grounds.
Robin 13.
Red-bellied Woodpecker 20. abundant
almost every time.
Purple Martin 600. Flying round
all morning.
Barn Swallow 75. flying
Red Headed Woodpecker 3.
Mockingbird 7
Carolina Wrens 7. on talus
Blue Jay 15.
White throated Sparrow. 125. abundant
all along. This Sparrow has a
loud ringing Chewink with the
first [illegible] Whistle.
Phoebe 5
Yellow-bellied Sapsucker 1
Towhee 150
Red-headed Woodpecker 6
Cardinal 2
Brown Creeper 5
Yellow-bellied Woodpecker 2.
Goldfinch 29.
Chipping Sparrow 17.
Red wing 60
Hermit Thrush 2. in low woods.
Cedar Bird
Song Sparrow 31.

Blackbirds 14
Sparrow Hawk 1
Bluebird 6
Mallard Ducks.
Swamp Sparrow 7.
Red Bird 7. 8 seen resting in tree in early morning.
Morning Dove 141 Starting in tops of Trees in search of Weeds & Chaff.
Red Tailed Woodpecker Flew. The first Hawk seen. Was a Distance and could not identify for sure. Later I saw three more in the tall trees of the bottom land and heard others and call so may say this is somewhat Flocking time. The flight was direct and the Birds very wary. Also Chipping Bird 1 heard this fall & Winter.
Tree Sparrow 2.
Field Sparrow 16.
Pipit 4.
White breasted Nuthatch 3
Brown Creeper 1
Downy Woodpecker 1 Also seen feeding from a suet feeder at house.
Cedar Waxwing 5 seen in edge of town.
Migrant Shrike 1.
Wind at 7 A.M. 12. Temp. 40-60° F. Sky clear. Ground bare

[illegible] 11 [illegible]. Distance
[illegible] 5 miles.

After dinner I packed up
my [illegible] and [illegible] of
the afternoon [illegible]
[illegible] wrote

Train for Gallup did not arrive until
about 9:40 so that it was nearly ten
when I reached that place.

December 21, 1917, Friday.

Did not sleep well last night for
some reason. The sky was overcast this
morn and it sprinkled a little and
then turned colder. Apparently another storm
is brewing.

Went over to the station first thing
morning & looked up connections for Gallup
NM. That is certainly a hell of a place
to get from up in here in mid winter.
Had intended to go to Albuquerque, there to
see the [illegible] exercises that morning
but [illegible] would be utterly impossible
for me to [illegible] it.

Walked around and [illegible] Mr.
McKenzie. First [illegible] [illegible]
Gallup [illegible] were very busy but he
was personally quite [illegible]
Here I [illegible] the [illegible]
[illegible] of [illegible] [illegible]
that there was [illegible] of it was impossible
to [illegible] at the present [illegible]

that rice shelters locally a breeding
Mr. Lowe introduced me to J. M. Satchfield
(who by the way knows the Pikestaff people)
in the Upper Island pool. Mr. Satchfield by the
way is a Yorkshireman.

Jno. Satchfield told me that he had
heard much damage done by Blackbirds and
was very bitter against them. He said that
there was some benefit from them when they
began to pick rice was in the milk but that
as rice was ripe to seriously injured
and the birds came in fewer numbers.
He said that this year the bird had done much
damage. He also complained of damage by English
Sparrows especially to rice in the milk.
He said that he had found it almost impossible
to poison either Blackbirds or Sparrows;
he had used ducks boiled but with little
success in his fields to some extent but different
did the damage. He had about 50 acres of
land of which Mr. Satchfield initials
and which had a failure last year
the 1st time since he took here, that land
was damaged by ducks.

Mrs. Hill & Co. Manager of the
Ethel Murrell Co. spoke to me
this morning. Mr. Hill told me that
they had had a loss in the field
by ducks but did not know exactly
how much as the birds had come in a lot
while the rice was being threshed and
we had only been about time before the
field was cleaned up. He said that as

through the farmers all about
Coolidge who had to pay them down to
specific instances they can give
prove pure so that further investigation
so useless. Such information and
knowledge here is worth thousands
in dollars.

Returned to the hotel at once
and found Lowrie had left a card left
for Hewitt then and was able
to catch it. left Gilbert at
12:20 reached Hewitt at 2:15:

Returned to the Gilbert hotel and
left the afternoon of my notes.

Rain thundered all the afternoon
but it dark if turned Colder rain
with the wind in the south.

Wrote The Game Commissioner of
Texas, W. W. Wood at Austin asking
him for a permit to make collections
in Texas.

Wrote to Mr. Pacific agent at
Little Rock asking for a pass to Denton
Denton arriving for Houston Tex.

December 22, Richland.

Spent most of the morning around the cotton until 10:30 when heavy rain set in and continued the rest of the day. Was kept awake until 2:30 A.M. by noise of the roof and eaves. Awakened at 5:30 A.M. by the alarm. Rain had ceased but the indications for more and I was glad of an opportunity to get up and work around the house instead of hunting.

Had little luck. Saw one bunch of 4-5 Canada and a bunch of mixed ducks. Followed up the latter and flushed them from a lake. This gave me a chance to watch the actions of the Mallards and Pintails that swirled nearly there. Between dawn and 8:30 there was a great flight of Mallards. The birds in this area were flying south and southeast and it may be that the cold wave is coming. Three days and four days ago all were flying north. Shall go out this afternoon and try to get a shot at the ducks that are feeding in the lake. Will try to get a shot at the ducks that are feeding in the lake. This may be the last day of duck hunting for this season. The number of Mallards in the area appear to be decreasing.

Yesterday was a cold night this morning. Many of our friends [illegible] left [illegible] Mallards.

Black birds seem to have a great attraction over cast of them are in the morning flocks [illegible] [illegible] [illegible]

and cotton fields here worth more
worth looking them.
I ate a light breakfast this morning
and carried a lunch that I
bought at a grocery to serve me
at noon. ~~This~~ Yesterday this diet and
exercise I felt much better at night.
Returned to town at three. Packed
up and had my baggage taken to
the depot. Shipped a package of
rice straw samples etc to Dr Jeffries
Purchased my ticket this evening.
Train for Little Rock leaves at
6:11 in morning.
Wrote up notes for the day
in the evening.
7 Observing is Bird-list for day?
Red-tailed Hawk. a fine adult.
Barred Owl. Two seen. One came up and
perched within a few feet of me while
I was squeaking. Did not shoot.
Golden-fronted woodpecker.
Downy Woodpecker heard.
Hairy Woodpecker "
Red-bellied Woodpecker Common. Found
where one had been eaten by a Hawk.
Pileated Woodpecker. Six seen. The
flight of these magnificent birds is
undulating somewhat but at 20
much 20 as that of other woodpeckers
they reminded me somewhat of jays in
the wing. The birds were found
in pairs and were wary. When

it was sighted the birds began their scolding calls usually twists flying in circles twice. I followed for pair to nest. I found two large [illegible] nothing near. Then two yards off them, I finally through it work I using slowly and carefully. I finally stopped for ten minutes until they began pecking again, working about on the tree and tapping the trunk with loud cackling taps. I finally got worked up close and I getting on it by beam to "squeak" loudly. The pair then came up, Blue jays and red bellied Woodpeckers gathered and finally the big woodpecker with the white tail came up and circled within 60 yards. I knocked this bird down with a broken wing and it fell screaming loudly. Two others called but refused to come near. The wounded bird was handsome me it and me with raised crest. It made no effort to fight me but struck the trunk a few several heavy blows with its bill.

Later I squeaked up another and shot it for a wing. As I picked this one up a third

came in and alighted above me in easy range but did let it go.
Put me [illegible] up in Tomahawk.
[illegible] Home / hide in great Wood pool
Flicker several.
Carolina Chickadee Several
Cattail Set Common
White-throated Sparrow Common
"
Myrtle Warbler several.
Bluebird abundant
Cardinal several
Phoebe common.
Red-bellied Woodpecker half a dozen.
Blue jay calling Kek-ek.
Bluebird several.
Robin one.
Rusty Blackbird common
Bronzed Grackle "
Redwing a few
Fox Sparrow several
English Sparrow
Carolina Wren one
Hermit Thrush two or three
Bluebird several
White breasted Nuthatch one
Sparrowhawk one in sight.

Dec. 23, Sunday

Left Dewitt this morning via St. L. & S. W. at 6:30 A.M. and arrived at Little Rock at 11:25.

Below Stuttgart I saw comparatively few flocks of blackbirds & those that I seen to have moved on Southern. Many flocks of Mallards were observed flying south. This territory lies 20 miles below the Mississippi River and must be considerably shifting in its bird life as weather conditions vary.

In Little Rock I transferred my baggage to the Iron Mountain depot & secured transportation for Eagle Lake Texas via Iron Mountain, T. & P., I. & G. N. and S. A. & A. P.

Left Dr. Patterson and E. V. Visart discussing the duck situation in Arkansas County. It seems that most of the night shooting clubs consider place of driving ducks from rice fields & was about all that where there was practically no damage to the crop.

Left Little Rock via Iron Mountain at 4:05 P.M. Was fortunate in getting a berth and the train was crowded but was not able to get to bed until 11:30

December 24, Monday.

Was up this morning at seven. The car [illegible] was out at Kangaroo Ferry for nearly two hours. Enabled me opportunity to explore a small [illegible] and I saw [illegible] ready.

Following birds were seen

Pelecanus conspicillatus
Australian Gannet
Phalacrocorax melanoleucos
Little Black Cormorant
Phalacrocorax sulcirostris
Little Pied Cormorant
Phalacrocorax varius
Pied Cormorant

Gathered two fresh water pools of the Kangaroo Island species, 3-4 feet tall that was common here.

Passed through a nothing country covered with [illegible] Kangaroo Island has birds more akin to Victoria, Queensland, & other mainland States. Saw a few flocks of Black birds that may be Victorian.

Much [illegible] (Rabbit) sign all along in sandy soil.

Pelecanus conspicillatus were [illegible] and [illegible] below. Much [illegible] in [illegible] [illegible] [illegible]

December 25, Tuesday.

Last night I was uncomfortably warm but this morning the thermometer was lifted to 50 with wind it is much cooler. Left Bismarck by T.A.T. & S.F. R.R. 7:05 A.M. Good wind all night, here at 11:40 A.M.

For a considerable distance the road runs through a kind of park country, the prairie dotted here & there with groves of trees which add much to the beauty of the landscape. The whole region was evidently the Indians favorite hunting ground but we saw very few.

At Jamestown we visited at the National Hotel, had a very good Christmas dinner and then walked out to look at the town. Came in on the train. It had rained most of the way on the open prairie but it failed to wet the ground much where we got back to the train and cleared off clear and cool when we left at dark.

We started about the entire region was dry and sage had a good appearance. By a little after dark we were out of it. I could not determine exactly - it faded away. But the

Daubentonia longifolia

[illegible] surroundings [illegible] and
through [illegible]. The [illegible] would
probably be [illegible] in
[illegible] when [illegible] was [illegible]
Rainfall.

Collected [illegible] number [illegible] of moths
& beetles but found it [illegible] to
devote [illegible] to insects.

Rained [illegible]

Crewe's Pond [illegible] 1000 acres.
Long-tailed Duck - 1 [illegible] 100 acres. These
birds [illegible] seemed to have [illegible]
[illegible] with their tails in the
water. Left [illegible] Crewe's Pond
[illegible] [illegible] [illegible] Pond
Hampton. [illegible] [illegible] Pond.
Edward in the shrubs and in fact
[illegible] in town. [illegible] [illegible]
about 12 miles east of here [illegible] from the
train.

Hewitt Marsh Farm.
Continued - 10
Pond Continued. Part of the [illegible] [illegible]
[illegible] in the [illegible]. [illegible] [illegible]
[illegible] and began [illegible]
[illegible] with [illegible] to the Northern [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [

December 26, 1917.

Blew up this morning at seven. The air was not cold but was not Cold enough to [illegible] Got in touch with Lt. C. J. Whitman of the Hatteras Life Saving Crew and made an appointment with him for 9:30

Lt. Whitman did not think it would pay us to go over to Bluebirds. The principle species this description were Red Wings, Blackbirds and Rusty tailed Grackles. The Redwings were in the bulk, this Time having come in early in the month. Through the Bluebirds began to work in here in numbers and by the closing days of January the South end of Pea Island was alive with birds. The Bluebirds worked on the reed beds on Eagle Lake and from there spread out to feed morning and evening. They were shy and on the fields to shoot but without much effect as the birds when alarmed would rise and fly only a short distance and then drop back again. It was not possible to determine the character of the birds observed in each field as they were [illegible] Blackbirds also attacked the rice

when it was in the shock. When it had to stand for some time during wet weather the single frame stacked the sheaves fast & more evenly than the old harvest the [illegible] spread out again and the grain [illegible] Broke up.

[illegible] to the [illegible] in Spring by the great thaw [illegible] other [illegible] [illegible] the ground was left [illegible] [illegible] [illegible]

[illegible] the end [illegible] there [illegible]
[illegible] due to feeding by the
blackbirds while the rice was
still in the milk. A friend brought
this out look examples to study.
The [illegible] seemed to show
that Algerine bugs in most the
[illegible] Department due to some disease.
[illegible] the rice is
restricted to the [illegible] and seldom
[illegible] the rice is [illegible]
[illegible] rice is milled it appears clean.
[illegible] Mrs. C. H. [illegible] a rice
grower who [illegible] the [illegible]
[illegible] and [illegible]
[illegible] the rice in the field for [illegible]
[illegible] to get it out [illegible]
[illegible] did damage but
[illegible] from this source was not noted.
[illegible] Banning said that Blue-winged
teal and "Shovel Bills" which
from his description were Texas [illegible]
[illegible] were found in the rice
fields in number. Some reached there
[illegible] the rice in July. The
[illegible] were also along the
shore but apparently did little damage.
[illegible] seemed to think
that [illegible] the hunters would keep the
ducks within bounds.

1913 was reported to be a
exceedingly wet year and in this

The region is so dry that the birds have to fly regularly to pools of water to drink.

Mr. Sinclair who had had trouble with Black birds in his rice.

Col. Mr. Harris who made the same statement.

C. W. D. Worrell of Jamaica had had to fight the Grackle and had used poison on the ackees. He said that he poisoned in early August and killed the birds in all of his fields.

Mr. Allocombe to damage is done by early in the day so that the guns may be directed toward scaring the Grackles. Then birds begin their feeding grounds and reducing their in Carapo part.

Cattle and hogs are turned into the stubble, to feed on the straw and to clean up the rice.

Field rat [illegible] great respect, certified to it before the Legislature [illegible] it is [illegible]

December 27, Thursday.

This morning at eight through the courtesy of Mr. B. W. Adkinson I was driven out to the Eagle Lake Pumping Plant of the Lakeside Irrigation Co. by Louis Gordon (or Gordon). The company pumps water from the Colorado River into Eagle Lake and from the lake into irrigating canals. The lake was dry save for a small amount of water in a canal cut through the middle. The entire lake bed is about 1 by 3 miles. It was grown up to a large rounded elevated Serpus [illegible] probably to voiding which had been burned over in part. These marshy growths serve as a roost for great numbers of blackbirds that come in at dusk and then spread out during the day into the surrounding country to feed. I saw a considerable flight of Brewers and Cowbirds coming from that direction between 7 and 8 this morning. This marsh thus acts as a feeder for the entire country.

I went down the canal for about half a mile in a boat when it became too shallow to further progress. A few Redwings were scattered along through the willows that bordered the canal and the lake shore and many Great tailed

Grackles were with them. Of a kind
known as for their
(Cowbird) female Redwing
two species (Icapisetes)
Four species in the Canal and
one other species of fish. Large numbers
of Land Turtles seen.
The day was clear and warm
and all seemed the best of
conditions.
Left Cristobal at 7 A.M. for Gamboa
and the Culebra Cut. Passed through
the Gatun Locks, Gatun Lake, Gamboa
Cristobal Junction, Culebra Cut, Pedro Miguel
Locks and Miraflores Locks. Arrived at
Panama at 4 P.M. Took a walk
about the city.
Returned to the ship at 6 P.M.
Left Panama Harbor at 8 P.M.
Here now as four days since leaving
Key West. Packed my specimens
and prepared
diary for this.
Large numbers of species of birds
seen today.
Following is list.

Redwing common
Great-tailed grackle common. Female seen 5
Stork (wood) Ibis. Only a few adult males
seen today
Texan Chuckadee Three seen
Green-winged teal Several in Canal
Spoonbill a dozen in Canal
Coot eight seen. Known as Pulidos.
Black Vultures common
Turkey Buzzard "
Texan Ibis a dozen.
Stilted Sit. three
Cardinal Three seen singing
Mocking Three seen
Titlark
Red-billed woodpeckers several
Downy Woodpeckers one
Yellow-billed " several. It is so dry
here that all do not know what they
feed on.
Yellow-throat several
Brown thrasher common.
Meadowlark
Mockingbird abundant
Crow Two
Shrike one
Meadowlark common
Pipit
Sparrow Hawk
Cardinal
Wilson's Warbler - Two feeding at edge
of Canal in Rose Apple tree with
Redwings. Never they seen

Sea Dog and Duck and bird but
Canny but almost at once to find
Land Sandpiper
Fox
Weasel
Squirrel
Woodchuck
Skunk
Mink
Rabbit
Raccoon
Porcupine
Hermit thrush
Robin
Wood-thrush
Veery
Olive-backed
Gray-cheeked
Bicknell's
Wilson's
Golden-crowned Kinglet
Ruby-crowned
Blue-gray gnatcatcher
Cedar Waxwing
Red-eyed Vireo
Warbling
Yellow-throated Vireo
Black-and-white
Tennessee
Nashville
Parula
Magnolia
Cape May
Black-throated blue
Myrtle
Black-throated green
Blackburnian
Chestnut-sided
Bay-breasted
Blackpoll
Pine
Palm
Ovenbird
Northern Waterthrush
Louisiana Waterthrush
Kentucky
Connecticut
Mourning
Yellowthroat
Yellow-breasted Chat
Hooded
Wilson's
Canada
American Redstart
House Sparrow

December 28 Friday.

Left Eagle Lake this morning on G.C. & S. F. at 9:00 a.m. Arrived at Wharton at 11:30 a.m. The train was an excursion train and stopped an interminable time at each stop. At Wharton we had to wait until evening for a train for Columbus. Myself & Chas Hansford left the S.P. depot and left our baggage at the hotel. We then went down to the Colorado River and followed it about three miles south.

The river bed was sandy and the water a bold swift current. I learned up on that it is 900 feet deep. I did not get it measured. The Colorado River was 70 to 120 yards wide and was very low. The water was clear. The bluff was fairly steep and had cut down 150 feet below the level of the plain on either side. On the east bank was a broad level stretch of fields on which corn was grown mainly. Farmers complained of destruction to sprouting corn by the great-tailed grackles.

There was a growth of live oaks, pecans and box elders along the river and clumps of willows. There was heavy undergrowth on the west bank but little on the east.

(Philidippus princeps + Pathrodectes mactans taken)

Drifted at Lisp
[illegible] Woodville, a
[illegible] Thursday [illegible] Tram.
[illegible] [illegible] [illegible]
[illegible] Visitors [illegible]
[illegible] [illegible]
Morning Glow [illegible] flows.
Dew [illegible]
Cowling Wire [illegible]
[illegible] Corral
Muddy Luck in Rocks.
left Wharton via S.P. 7:45 P.M. arrived at Old Campo 8:20.
Registered at New Hotel. Retired early this evening. Was tired & sleepy and turned in at nine.

December 29 Saturday.

This morning the thermometer was down to about 28° with a strong North wind [illegible] from the [illegible] of a blue norther. I got up at seven, dressed & had breakfast and did some writing. At 9:00 called up Mr. W. W. Wilson Vice President of the Southern Rice Growers Association for Texas. Mr. Wilson said that Rice had been grown in this region since 1900 and that last year 25,000 to 30,000 acres were in rice at Old Campo. He said he would [illegible]

crop. He said that this part
of the Rice Belt sustained a
loss of five acres of rice like a
flock of Blackbirds about a willow grove
pond while the grain was still
in the milk. He said that this crop
this only instance of damage of
this sort. He heard nothing of
the experience here. He said that
Crows and Prairie Chickens
did much damage to Sprouting
corn but that rice was not
injured.

I also met Mr. H. W. Conrad manager
for the Louisiana Rice Growers Co. at
Duson. He said that they had no
complaint to make of damage to
their rice crop by birds.

Duson Station said that many
acres that this road runs through
or close to grain in shock &
great damage with the rain and
to get the rice out of the fields.
Damage was done by Blackbirds
Crows & some Doves. Ducks
do not molest rice.

Later on I met Mr. H. T. Urlam
a prominent Rice grower. Mr. Urlam
claimed that Blackbirds had done him
much damage and that they had
been especially bad this past year. He
estimated the loss at $3000.

Reference were [illegible] of the [illegible]
[illegible] the Magpie of "Black birds". [illegible]
[illegible] only but certainly probable the
previous Black birds were [illegible] or
not. The Great-tailed Grackle is not
so [illegible] to nest but does
prefer [illegible] to [illegible] on the
[illegible] to nest [illegible] on it's
in the [illegible] and the Red-winged Black
[illegible] in Corn, [illegible] Species
[illegible] to be [illegible] strange at its
[illegible] time. The birds [illegible]
to [illegible] in Choice [illegible]
[illegible] [illegible] in the field.

Mr. K. H. Hancock [illegible] of the
[illegible] had [illegible] [illegible]
[illegible] said that he had [illegible]
Species [illegible] in one field [illegible]. He
[illegible] this [illegible] the rice was
still [illegible]. The Cattle had [illegible]
[illegible] into it. [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] but [illegible] [illegible]
[illegible] of the birds observed [illegible]
[illegible] the [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible].

Mr. Hall [illegible] [illegible]
said that there was [illegible]
[illegible] by Blackbirds.

[illegible] [illegible] of the [illegible] of Wasps
[illegible] [illegible] the same [illegible].

December 30, Sunday.

This morning The weather had moderated And The Sky was clear. I spent the early morning in watching flocks of Brewers Blackbirds that were feeding in the fine square in the center of town directly in front of the hotel. They were walking about quite actively on the short grass & occupying themselves in chattering flocks. Could detect no rusty Blackbirds among. Many of the birds were males in full black plumage with heads tinged with purplish.

A number of meadowlarks and a few English Sparrows were with them.

The hotel here has been poorly heated and in addition is built like a barn so that drafts penetrated it in every direction. In consequence I have caught a very bad cold.

I left El Campo at 10:15 a.m. and reached Wharton at 11:00 a.m. Many Brewers Blackbirds and a few Great-Tailed Grackles. Saw [illegible] in fields from train.

Left Wharton via S.P. at 12:30 and reached Bay City at 2:20 P.M. Dark mottled rail along. Two small streams crossed were [illegible]

great flocks of Meadowlarks were seen all along. Some of these contained as many as 100 individuals. Brewers Blackbirds were common all along and I saw small flocks of Great-tailed Grackles.

Reached the hotel about three and sent a night wire to the office saying that work here was about completed.

Have a very bad cold & started in treating it.

December 31, Monday.

Clear & cool as usual this morning. Weather has moderated and it is now fair and clear. Much warmer today. Called at the office of the Brighton Fire Grocery Association and made the acquaintance of Mr. F. G. Marshall secretary to the manager. Mr. Marshall was educated in the Brighton Grammar School and has been here about a year.

He showed me fields of damage and told me that the Association, which is known as the "Fire Insurance Co." has been doing a large business. Fires started in the fields from the sparks of the engines of the trains and in the small grain fields it was hardly checked. He said that the damage had been bad here but that it was more so last year. Some fields being badly

heart of field [illegible] were practically
untouched. This was due to the
early ripening of the grain in some cases
or to [illegible] in shocking in others.
Some damage had been done by
shock in certain localities in addition.
He said that in his relief [illegible]
over a portion of the rice fields in
some cases were due to the
threshing process. That the grain was
through it while it is curing in
the shock. The so-called "peaky"
grain the rice [illegible] was entirely
[illegible] this is attributed to [illegible]
agencies. Samples showing this
were given to me.
He said that in his opinion
it was dangerous to stack rice
as it turned out the grain
should "burn" could be started.
Mr. Marshall gave me the name of
several rice millers of Houston
here in town.
Called first on Mr. C. J. Hardy
Pres. and Gen. Mgr. of the Markham
Irrigation Company of Bay City, Texas.
Called on Mr. H. M. Vogland, Vice
President and Secretary of the company.
These gentlemen gave me nothing but
[illegible] and seemed to [illegible]
[illegible] to [illegible] in.
Called [illegible] to see me [illegible]
and left. Mr. Hardy stated [illegible]

around and to look for [illegible] it
consider it [illegible] to work
Mr. J. F. Foster [illegible]
[illegible] [illegible]
the [illegible] he called the
[illegible] [illegible] considerable
damage by [illegible] the sprouting rice
in the spring. He said [illegible]
[illegible] [illegible] done by these birds
later on in the season. The Superintendent
also talked upon this [illegible]
Responding to his experience Mr.
Richmond Pettigrew began his address
[illegible] in the following words. [illegible]
the rice goes into the milk stage
birds attack the field of ripening
grain from their nests in the
[illegible] and fly [illegible] the grain
is totally destroyed - the Birds are
totally [illegible] in Numbers. He has [illegible]
[illegible] [illegible] 176 acres in rice - He
[illegible] [illegible] about the Blackbirds
from the first and expended $[illegible] for
[illegible] in this work. The first
[illegible] [illegible] [illegible] the
birds were able to [illegible] [illegible]
[illegible] has been tried to get
rid of the birds and has been successful
by [illegible] in others not. Sometimes the
birds would refuse to [illegible] the
poisoned grain. Again after a number
had been poisoned the others would
forsake the field and not return.

Ducks damaged the rice crop in many areas but more especially in Lost years W.M.W.N. Township is a large rice growing area in this region. The principal damage is done by Mallards, Blackbirds and Red Wings, which would seem to have practically ceased. Brewers Blackbirds and Red wings begin to gather in with the rice in the milk and damage continues until the grain is finally threshed and stored away. We estimate the loss this year at one bag of rice in five with an average yield of 11 bags to the acre. (Each bag should weigh 180 to 190 lbs and there are 54 lbs in the bushel). We have a conservation area and this is kept free from gun fire and trapping. We feel that this activity is about 200 acres in size. The birds come from 4000-6000 ~~ducks~~ their best feeding grounds in the region where we have farms. But this year only about 800 acres had been put in because of a shortage in water. The attacks of the birds in former years distributed over a large area were concentrated in this small acreage and the loss was very large. No attempt was made to keep the birds out that way. Shooting

[illegible] of the rice in Stuart Town
[illegible] [illegible] [illegible]

Some farmers [illegible] due to the
rice crops [illegible] [illegible] but
[illegible] [illegible] this year. Many
farmers are [illegible] by clearing
up [illegible] rice during the harvest
in the fields. [illegible] is required
[illegible] to [illegible] [illegible]
into the [illegible] for the purpose. It was
estimated that each [illegible] the
[illegible] in the field with [illegible]
[illegible] in waste rice to 50–100 [illegible] for
[illegible] [illegible] [illegible] days [illegible]
[illegible]. Ducks [illegible] [illegible] frequently seen
in great flocks [illegible] [illegible] this
[illegible] rice [illegible] [illegible] or three days.
Ducks come in after the [illegible] fields
[illegible] rice has been [illegible] by
the wind.

Black birds especially Grackles and
the Great-Tailed Grackle [illegible] [illegible]
damage this year in fields of Kaffir
Corn, [illegible] corn and [illegible]. [illegible]
[illegible] fields [illegible] [illegible] it is still [illegible]
stripping back the husks [illegible] feeding
on the [illegible] grains. Fields of [illegible]
What a real crop [illegible] [illegible]
and Wrens use them for cattle feed.
[illegible] entirely stripped by the birds
who eat all the seed produced.

Mr. J. W. Kelly had raised no rice
this year because of water shortage

but had about 700 acres on the last previous. He reported much damage by birds.

The old rice land if it is necessary to plant the rice shallow and something the seed grain is not entirely covered. Birds feed much more on the shallow sown rice. Upon it is sometimes necessary to [illegible] and the rice in order to get it to sprout. Birds then come in [illegible] and feed the sprouted grain from the surface of the ground. [illegible] the shoots and [illegible] them.

Blackbirds also swarm in the field when the rice is in the milk [illegible] their attacks as long as the grain is exposed in the fields. The resulting damage is great. Mr. Kelly stated that in one field [illegible] he counted 15 negroes to protect the [illegible]. Many of these [illegible] were armed with guns and [illegible] ammunition to shoot the birds and the [illegible] were provided with [illegible] and [illegible] which they [illegible] vigorously to frighten the birds. At least two operations to [illegible] are [illegible] to kill the birds. This method is not [illegible] very before the rice is cut as too much rice is [illegible] down.

Blackbirds, being a great [illegible] damage if it is [illegible] to [illegible]

January 1, 1918, Tuesday.

Cold. Much improved this morning but still very hoarse.

Mr. E. N. Krause a lawyer of Bay City with whom I became acquainted last night came for me at eight and took me in his car into the region South of Bay City. Mr. Krause is much interested in birds and we had a very pleasant forenoon together. Mr. Krause has a ranch at the mouth of the Bernardo River in Brazoria county 40 miles below here and wanted me to go down there with him but time would not permit that & make the trip. He describes it as a very wild country with many birds about. He wishes to get in touch with the Audubon society and says that he has done much toward protecting the birds in his region. Mr. Krause says that the Whooping Crane winters commonly with them still and from his description there is no doubt but that he knows the bird. He says that the birds are fond of wild potatoes and that they come in to feed on the discards after the potatoes are dug. Some birds that he has described as visiting some trees in his yard recently must be Carolina [illegible]

We went from Bay City south on the east side of the Colorado River to Wadsworth and then

to Matagorda Bay. Extensive areas
had been planted in rice here but
all had been cut and harvested
long ago. I made a critical
examination of my field above
Wadsworth and found that the
stubble had been flattened in many
places and that under it was
considerable scattered rice. This was
true especially along the levees.
Stalks that stood out had been cut and
some few will glean up.
Small flocks of Mallards and
Green-headed Teal were feeding
in the rice fields but on the whole
I saw comparatively few blackbirds.
This week ending Jan 5 was fair and
I drove down to Matagorda
Bay twice for the purpose of
shooting the river. I had expected
to find ducks on the swamps at
the bay but where it reached the
tidal prairie near shore
right to the water and then
sloped down to a tidy swept beach
where the pretty water lived.
The Matagorda Bay area was dimly
seen in the distance, scattered
groves and the few gulls
flew lazily over in the warm
breathing air. Patches of gulf
water for a long way a pleasant
view. We walked along the shore

looking at the Bull Cedars in search of [illegible] to be found there were only [illegible] I had expected but it is probable that more would have been found had time permitted a trip [illegible] away from the village to the east.

I saw my first living King Quail today while I was passing through flocks of Scaled Quail. I saw two in possession of hunters in Bay City on Sunday.

[illegible] saw many Red-tailed Hawks, the white tail with the black [illegible] tip [illegible] The birds were [illegible] [illegible] [illegible]

in this fine growth near the river.

Collected a few beetles and other insect under logs and bark. Centipedes and millipedes were abundant. Also collected 1 Eumeces, 2 hyngosoma laterale and 1 Anolis Carolinensis. Birds were fairly common but I saw nothing of particular interest. The river here has divided into two channels. Returned to the hotel at four.

Following birds seen today.
Pipit common.
Horned Lark. about 25 above Matagorda. These seem to be A. a. strigata.
Sprague's Pipit. one near Matagorda.
Meadowlark. Abundant. I have examined a number of these birds and all seem to be eastern.
Red-winged Blackbird about 50 seen.
Great-tailed grackle about 125 seen.
Brewer's Blackbird about 50 seen.
Sparrowhawk common
Red-tail several.
Burrowing Owl. one near Matagorda.
Snow Goose. Several flocks
Blue Goose 7 or 8 seen. Known as brant.
Mr. Kraus says they are common at the mouth of the Bernardo River.
Canada Geese. 7 or 8 seen.
Killdeer common.
Red-backed Sandpiper 3 at Matagorda

Black-bellied Plover ~~on~~ at Matagorda.
Least Sandpiper common
Western " "
Seaside Sparrow a few. Mr. Bagg
says they have left Rockport this
season at the mouth of the Guadalupe
River.
Marbled Godwit common during
migration at Matagorda.
Willet fairly common.
Hudsonian Curlew.
Long-billed "
Black Vulture "
Turkey Vulture
Mourning Dove
Carolina Parakeet (Conuropsis v. carolinensis)
Common Tern at Matagorda.
Ring-billed Gull " " "
Herring Gull " " "
Forster's Tern(?) in flock of this sp.
seen at Matagorda.
Royal Tern " " "
Caspian " " "
White-tailed Hawk.
Mallard. several
Pintail. three
Redhead. Two
Canvasback. several
Marsh Hawk - two
Song Sparrow several.
Texas Pocket Gopher. Colorado River.
Carolina Wren common
Texan Chickadee. several.
Titmice common

Willow. Bullet Woodfin in ear
Kirk " " " arm.
Above Woodfin's store
Broom factory on
Spotted Sandpiper, on Colorado River
Heron - white Great Blue.
Kingfisher.
Pondered that the color in man
could not keep within 20 feet of it
ever to.
Tx Sparrow.
Night Hawk
Yellow-breasted Chat in Elm
Red-shouldered Hawk.
Goldfinch.
Bald Eagle.

January 2, Wednesday

Was up this morning at Seven. At eight left in a Ford Car and was driven first to Northern Headquarters of the Station of the Blue Creek Irrigation Co. Then to Markham, also Citrus Grove, to Simpsonville, crossed the Colorado River a short distance above Matagorda and returned through Wadsworth to Bay City. Distance covered about miles. Returned to Bay City about 4:30 P.M.

The day was clear with a strong wind from the northwest. Cool in morning but very warm in afternoon.

The area covered was all level prairie land all of which had been broken at one time or another. Formerly a large part of it had been in rice but because of shortage of water much of it was now lying idle and a great deal was in cotton or corn planted by dry farmers.

Great tracts were still in rice however.

Called first at the office of C. A. Ulland, manager of the Biggs Crut Canal Company. Mr. Ulland said that this year they had had 6000 acres in rice. He said that damage by blackbirds was very heavy and that it had been especially heavy this year. The damage came when the grain was in the milk but was especially heavy during the period that the rice was in the shock. Also one variety of early Prolific Rice just was finished cut and the remainder was cut partly about a month later. The Birds worked in this latter a great deal. [illegible] this last [illegible] 2½ days [illegible] was [illegible] Mr. Ulland [illegible] [illegible] [illegible]

considerably. They are especially bad in late rice with it most in the shock.

Mrs. H. H. Forth ... he was having Indian Mail bad trouble with Blackbirds. And said that the damage extended clear through the season. Blackbirds were especially bad. Mr. Powers was had to shooting and to burning to keep the birds down. He could make no estimate of the actual amount of damage but said that it was seriously heavy this year.

He said that the "Sun-ri Bird" which seems to be the mottled black sparrows was a large & destructive pest in rice fields.

Mr. Jack Howard said that his damage from Blackbirds had been very heavy and that a shotgun was resorted to to drive them off. The birds were especially bad at seeding time and they did not trouble him much until the harvest. He had been about two years in the rice business and had had no trouble to speak with them while working in his fields.

Called at the home of Mr. W. Howard on Cotton Grove Rd but found Mr. Jasper not at home. Mrs. Howard however seemed very well informed

The chief Yield damage to the rice crop is Black birds Had a Great many More this year than last. In 1916 they [illegible] that were held a meeting at Cottonplant and advised to poison the Blackbirds in spring at Seeding Whether they planted rice or not. This was done by Cotton growers as well as others. The men on the Seeders carried cans of poisoned rice which they distributed in the fields as they went along. Considerable Damage in Consequence. The Blackbirds were greatly reduced in this way and There was little damage by them in fall. Though it is said that in some localities much damage was done.

This year much damage was done. Some fields of their rice were cut for seed were protected by seeding them together and planted more than the birds were able to destroy in September and October and what was eaten by them. The damage from birds of all sorts was more than usual. The rain storm [illegible] [illegible] [illegible]

by Blackbirds.

Mr. J. F. Johnson [illegible] and Cabbage [illegible] a total loss [illegible] headed grain [illegible] by heavy hailstorm [illegible] Blackbirds [illegible] farmers [illegible] $40 worth.

Mr. J. C. Roberts of Wadsworth [illegible] that the birds had destroyed 150 bags of [illegible] 20 acres. Late planting was a bygood reason.

Robbing nests and [illegible] resorted to as protective measures.

Mr. Parker, Woods of Sycamore Township, lost [illegible] by Blackbirds [illegible] practically [illegible] Blackbirds. The "Star" [illegible] Blackbirds [illegible] Sandusky [illegible] [illegible] in part of [illegible] large [illegible] of Redwings [illegible] Robin. The [illegible] use of [illegible] [illegible] [illegible] areas.

E. B. Rockwell [illegible] about [illegible] all Blackbirds [illegible]. He has been in this [illegible] 40 years.

Called at a dozen or more other places but found the men away or else they had [illegible] the corn season [illegible] past two years have obtained a great deal of shooting [illegible] Blackbirds [illegible] [illegible]

Canvas-backs. Birds were found
mainly on several lagoons but
chiefly one at a time instead of
in flocks as the other species did.
Canvas-backs were not at all wary.
A Bald Headed Hawk. Several seen. One
perched [illegible] with a fish.
Sandpiper Species Common in rice
stubble.
Plovers
Black-bellied
Golden
Black-breasted. Feeding in mud
holes in the rice stubble. Can't differ
Stone and Sam in the field and they
report [illegible] Must [illegible] near
El Malleau.
Coot Bird. In flocks of five thousand
found in rice stubble. Fifteen collected.
Females had eggs [illegible] always
but males would [illegible] in
season. Dark [illegible]
Meadow-lark. Abundant [illegible] the
road and in the fields. Gill net.
Great tailed grackle. Fairly common
about 200 seen.
Red-head Duck [illegible] in one
wing [illegible]
Ring-necked Duck, several feeding
on a pond.
Killdeer common.
Long billed Curlew. About 20 seen.
Stilt [illegible]
Red-tail [illegible].

Marsh Hawk arrival.
Red shouldered Hawk arrival.
Meadowlark [illegible]
[illegible]
Hawks "
Junko Song Sparrow arrival
Mourning Dove arrival
Great Horned Owls
Screech arrival.

The closing [illegible]
Then are crossed [illegible] a fine
[illegible] of air tracks in which the
[illegible] are [illegible]
[illegible] birds. And [illegible]
[illegible] [illegible] [illegible] in the
[illegible] [illegible] [illegible] [illegible].

The White-tailed Kite.
One of the first birds that [illegible]
[illegible] [illegible] [illegible] if
[illegible] or dark [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
tail crossed by the single dark bar
very very characteristic.

This species the Blue Goose, and
[illegible] Pipit are all species that
[illegible] [illegible] [illegible] in life [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] addition to my list.

[illegible] [illegible] [illegible] [illegible]
[illegible], in [illegible] [illegible] [illegible]
[illegible].

January 3, Thursday.
left [illegible] this morning
via S. P. at 9:00 A. M. Weather
cold and clear all day. Saw several
flocks of Red-winged Blackbirds
and Fish Hawks were abundant in the
marshes.
Reached Hayden at 1:05 P. M.
Changed cars and then waited
for Southern Passenger Train
No. 1.
Met Mr. H. Hoffman here.
He said that the only serious
complaint this year of damage
by Blackbirds came from what
was known as the Old Rice
Canal below Hayden. Here
Blackbirds had done much
damage to the rice crop of
Mr. Hoffman. Mr. Hoffman had 92 acres
in rice. Purchased ticket to Jacksonville
on morning train. Left Hayden
at 2:30 P. M. for Jacksonville.
January 4, Friday
left Jacksonville, Fla. at 8:15 A. M.
arrived New Orleans 8:20 P. M.
left New Orleans via L. & N. at 9:20 P. M.
Jan. 6, Sunday
Arr. Washington, D.C. 12:45 P. M.
Visited Bank and at Branch, Va.
Bought eggs of Bank Swallow near Millwaukee.

May 15, Wednesday 1918.

Left Washington via Southern Ry Co. at 10:45. Went to bed in the station about 10:20.

May 16, Thursday.

Was up this morning ~~before~~ about 7:20 by the time reached Greensboro, North Carolina. It has rained heavily through here and the sky is still overcast so that travel was comfortable as there was no dust and the air was cool and pleasant.

The part of North Carolina that I crossed was a high rolling country similar to that where I worked last June near Arden. In fact it reminded me strongly of that region.

The same rolling country continued across the corner of South Carolina and into Georgia. In the latter state the hills were more pronounced and a system of terracing was in vogue to prevent the surface soil from washing in cultivated fields. Apparently each terrace was started as a deep furrow with the earth thrown out on the upper side. This was gradually built up by earth washing down to it from above. In fields where this had been in operation for some time the terraces were two & three feet high.

Somewhere near Spartanburg I saw

Two bald hills. That must represent a branch of the Other Ridge.

Birds were surprisingly few. I saw Crows and Mourning Doves and once in a while a buzzard. English Sparrows were in evidence in the cities and once or twice I heard Orchard Orioles sing. It was dark after we left Atlanta.

May 17, Friday...

Clear and fair this morning. I got up about six as the train was coming into Mobile. The sun was hot but not oppressive. I spent most of the forenoon on the rear end of the observation car.

From Mobile to Pass Christian birds were not common. I saw one Snowy Heron flying ashore at Biloxi and Red-wings were fairly common. Between Pass Christian and New Orleans however bird life was abundant. The train passed cut-over salt marshes, some covered with low growth of Phragmites phragmites. Higher ground had scattered pine forest much of which was being tapped for turpentine. Red-wings were abundant in the marshes and I saw many Boat-tailed Grackles in growths of Phragmites and Typha. Apparently the Grackles were on their breeding grounds. I was told last winter

that they bred in Tres about houses but it may be that they were confused with Brewers Blackbirds. I saw snakes displaying in the air sailing along in a straight line with the tail deeply angulated and the primaries pointing upward toward the tips so that the dorsal surface of the wing seemed concave.

A number of Coots (some of which may have been Gallinules) were seen in inlets. Saw one Great Blue Heron, two Little Blue Herons, 2 Green and another Snowy Heron. Also Purple Martins many Crows and Black and Turkey Vultures. Watched closely for salt Marsh Sparrows but saw none.

Reached New Orleans at 11:10 Made a hurried transfer and left via Southern Pacific for San Antonio at 11:30. The crossing of the Mississippi on a ferry was interesting. The river was high. no birds.

Leaving here the train passed through Cypress swamps, Marshes and finally came to higher ground with fields of Cane and Corn.

Pontederia was in bloom here though a week ago at Blyth Va the leaves were barely starting. I saw great marshes covered with a tenth-stemmed Scirpus with a large inflorescence that looks exactly like Acutus lacus

and apparently must be that species.
Also saw quantities of a pinkish purple
marsh flower (pond lily) with shiny
leaves like those of an aster lilies
and a flower spike projecting above
them with 10 or a dozen flowers on it.
Some of these grew in muddy places
others in water partly submerged.
Saw Melia azederach in yards,
also cypress, live oaks hung with moss.
In places are undergrowth of palmetto,
that seems to have been touched by
frost as the tips of the fans were all
dead. Plantations of Pecan noted east of
New Orleans.
Saw Meadowlarks, English Sparrows,
Orchard Orioles, Pewees, Martins and both
species of Buzzard
Much cane grown here and
a few fields of rice cut off in squares
and now under water showing only
a faint green of the sprouting plants.
Farther west in Texas. Have travelled
across the same dead level plain that
I traversed last January. Now much
of the areas was in to rice and
other crops the rice just sprouting.
A few Redwings and Megaquiscalus
feeding in the fields.
May 18. Saturday
Arrived at San Antonio at 4:50 a.m.
Car was set out there and I got up at
6:30. Registered at the Menger Hotel.

. About nine I called Drs. C. A. P. Campbell on the phone and made an appointment with him at 12:30.

Went out and viewed the Alamo and was much interested in the historic structure. As I had nearly three hours remaining I took a car marked South 7 Flores and rode out to the edge of town. Found an area of waste land grown up with mesquite near the San Antonio River and collected insects or a few plants that was in flower and in pods.

Called on Dr. Campbell at the proper time and talked with him until 2:10 when he left me. He flatly refused to take me out to see the bat roost at Mitchells Lake or to permit me to go alone. Said that the roost was special private ground and that he would not give me permission to enter. I argued the whole matter with him from every possible angle but had to give it up. He claimed to have taken motion picture of Caltura from the air and that his bat roost was in that, that we were prejudiced against him and that he could not permit anyone by whom he had already been attacked against him. When he left me he said that he had an appointment to take another man out there at 2:30. He did not go however as I

found him in his office again at 4 P.M. and we stayed some hour.

I called Dr. Louis Robichaux an acquaintance of mine but he knew little about the robot. Said that a wood was being erected at the Southwestern Louisiana asylum of which he was architect. And that they had paid Campbell 250 00 royalty for the building.

Campbell stated that he had seen specimens of the Nyctinomus mexicanus from Vermont, New Orleans, Michigan, Kansas, Texas, etc.! all of which he of course embalmed.

He stated that each 2 ton of guano from his cave contained three pounds of iron. The pound only came from the chitin remains while the rest came from the Haemoglobin from ingested blood eaten by mosquitoes.

I am inclined to think the whole thing a joke.

Could do nothing but so arranged to leave via d & g l n. for Chama N.M. at 8:00 tomorrow.

Then went out to San Antonio Rain again and collected more insects. Returned to town at 8:00 P.M.

Cassada carcini. Two males seen in mosquito. They were singing constantly. On the morning one sang after in the wing flying up fifteen to twenty

just from the ground and then floating
down to a perch with head thrown
back and singing constantly, a very
pretty performance. The song was
high pitched and rattling, shrill and
though pleasing reminded me strongly of
the noise made by a spreading
windmill. The birds were shot when
on the ground and I was unable to
approach them closely.

Muscivora forficata several seen & heard.
Passerina ciris. A pair seen, very
noisy now.
Coerebinis bicolor One male seen.
Dendroica D. maculosa Common.
Mimus P. leucopterus Common.
Cardinalis C. canicaudus several
Harporhynchus lecontei several singing
Bathophilus bicolor on seen others heard.
Spizella americana. Several. males singing
perching from the next seen and heard.
Oreospizus americanus. Two heard calling.
Chondestes V. grammacus. Heard calling morning
& evening.
Cathartes C. septentrionalis common.
Bombycilla cedrorum. Several.
Progne subis several.
Passer domesticus abundant.
Myiodioctes virens. Common.
Empidonax minimus Common.
Empidonax a yellow breasted Empidonax
that was probably difficilis was
common.

Chondestes g. Lobrigatus several
Spizella pallida. Lbro. singing.
W. Lanivirus o. (plumbeus?) song.
Wrote the office after dinner. Retired
bed at midnight.
Light showers during day. Very
hot.

May 19, Sunday.
Left San Antonio via M. & G. N. at
5:00 a.m. Fairly cool & pleasant.
The country was more or less level
and well cultivated until Braggs was
reached. From there nearly to Milano
was a stretch of broken limestone on
on side of the track with oaks and cedars
scattered over it that looked very
interesting. I judged it a good
place in which to look for Vireo
Vicinior.
Arrived at Milano, Tex. at 12:50
P.M. Had an hour here and collected a
few insects in flowers of poppy and others.
Found no birds under rocks, perhaps
because it was too dry but more probably
because of the numbers of foraging ants
present everywhere.
Following birds seen
Bewick's Wren one singing (Cupressus)
Red-headed Woodpecker one in a grove of oaks.
Blue jay - one
Lark Sparrow, several Dickcissel common.
Mockingbird one
English sparrow common.

Great-Crested Flycatcher - one
Mourning Dove common
Yellow-billed Cuckoo - one.
The sun was hot here but not unpleasant. The Bewick's Wrens were singing loudly. First one I have heard since the one shot at Beal City, Michigan in May 1905.

Left Milano via G.C. & S.F. at 1.42 P.M. The broken limestone country paralleled the track nearly to Temple.

Through this whole region there were great numbers of Mourning Doves. Though many were in pairs I saw flocks containing from 10 to 50 birds. It is possible that these were all foraging mates as I found to be the case last year in North Carolina. If Doves do any harm to crops certainly some of it must be done here where the birds are so abundant.

Reached Fort Worth at 5.10 after a rather tiresome ride in a crowded day coach.

I walked across to the Union Station & secured Pullman accommodations on the Fort Worth & Denver City for tonight.

The town was simply crowded with soldiers. Actually there were more men on the street in uniform than in civilian clothes.

It was very warm tonight with no wind and judging it to be a good night for insects I re-dressed

in the suburbs to collect under lights. Apparently however Fort Worth was observing Sabbath as no lights were turned on save in the Residence districts. On my way back. Spotted one light at the Railway Crossing and collected a lot of Phyllophaga 2 spp. th, a Calosoma etc. Counter up.

Left Fort Worth via Fort Worth & Denver City railway at 11:05 P.M. very hot & close in pullman and car crowded.

May 20 Monday.

Awoke this morning in the pan handle country of West Texas. Very dry here though they claim to have had some rain.

Red River entirely dry.

The country clear level in the Main until beyond Amarillo where there was a region of small buttes capped with a narrow stratum of limestone. The soil at Amarillo was a dull brick red.

The Canadian River was entirely dry, the bed being a broad expanse of sand.

Hundreds of Mourning Doves and a few Red-wings and Killdeer noted but little else.

At Dalhart Texas we were held up three hours and a half because of a freight wreck ahead. This delay

caused me to lose a connection that I had expected to make at Wilsonburg Colo., so I went to bed and went on in to Pueblo as my ticket was good that way and by doing this I was able to get more sleep.

March 21, Tuesday.

Reached Pueblo at 6:30 A.M. checked my hand baggage and then went over town for breakfast. Had an hour to wait before the ticket office opened so climbed up and down hills in the south end of town in order to look over the country. The Arkansas River runs directly through town and the Fountain at that point rises in the Divide and somewhere back of them over near Palmer Lake (in 1909) comes in beyond it. The Arkansas contained a fair amount of water but the fountain was nearly dry.

At eight o'clock I boarded a train for Trinidad and this followed the Arkansas River south of town. The stream here is 60 to 100 yards wide but has half or more of this expanse occupied by sand bars. The current in the river is very swift and the rocky bed caused many ripples. Fine growths of cottonwood lined the banks and other varieties of growths of willow and Red Alamo.

Inland were low level broad hills with abrupt sides and flat tops. These were [illegible] with grass, cactus

and as usual around rocks. In adding in trees, Likes Black willow, a buffalo pea, another legumes and one or two other plants. The country is extremely dry. Leaving the train after making a long circle of some 12 City park of 250-300 acres north of Pueblo. This was in part split rails and part the usual barb wire fence.

Collected insects all day and got a few excellent ones but comparatively little else. Sacked 12 new quickly came and got me as I was. Found very handsomely colored Meloid (Epicauta) was found in small numbers on one or two plants. And I found a few Cholepis on another. Coccinellids common. Very few bugs. A Chinch bug like species & a Lygus somewhat all over.

Birds very abundant in the city park. I saw many Black-headed Grosbeaks here & there of have not seen in our Bay before. The males were in full song and were dining on every hand. The call note is heard. And less sharply but then the call note of the Rose-breasted Grosbeak. The males were singing in the evening. I cannot help believing that the Lack bills of the species of Zamelodia influence the grosbeak development that has come not through use but through lack of a check to prevent the growth. There seems hardly to be anything in the food to bring about such a crass growth.

Dendrocincla meruloides ~~common~~ in the woods
Thamnophilus punctatus [illegible]
Myiarchus f. fortis. Common around small
clearings near the river. Saw one nest
that was completed but could not reach it.
Saw my mate picking horsehair apart perhaps
for bullets.
Zonaiduras m. marginella Common.
Quiscalus q. aeneus Fairly common.
Tyrannus Verticalis Common.
Myiochanes r. richardsoni. Several seen. The
Call note is strikingly different from that of the
eastern bird.
Pitangus m. p. pitangua Common. not heard
Carpodectes n. antoniae common. The boat-
pilot is a bird of strong flight and
often passes high overhead traveling for
considerable distances.
Passer domesticus abundant.
Icterus cayanensis Common
Melanerpes erythrocephalus several.
Campephilus d. desmarestii ~~one~~.
Actitis macularia several.
Oxyechus v. vociferus several.
Charadrius g. strigatus "
Trogolytes aedon parkmani a few seen.
Icterus bullocki very common.
Ceryle h. meyeri. A male seen at close
range must certainly have been this form.
Crotophaga s. rhadina one.
Picus p. lineatus several
Dryocopus rufus "
Tyrannus tyrannus one.
Elaenia v. cinereiceps one.

Callipepla squamata, Among some low hills & the bushes around, the birds very attention were attracted by a curious barking calling that suggested some reptile. Tracing it down I found that it came from a small ~~scaled~~ quail. The bird had chosen a stand near the brink of an abrupt slope where he looked across the adjacent valley. I was able to watch him at a distance of 60 yards for several minutes. He called at short intervals raising his head with each note, and swelling the upper throat as though the call was given with great effort. The notes were always doubly accented the syllables chuk chu or bur chu given explosively and repeated six or eight times. The first note was a sharp barking call the second more drawn out, somewhat querulous and more feeble. Between calls he walked nervously about in a small area of stony ground on all on legs. He held himself quite upright with the throat fully elevated all the while. Finally he flew down the slope in the opposite side.

Thurs. Wilsonia p. a golden one in some willows

Zonotrichia leucophrys heard singing

This morning [illegible] and half [illegible] thunder storm passed over many electric light wires in town.

Clear all day. Cool & pleasant [illegible]

Returned to town in evening packed provisions and then went to bed in the sleeper at nine.

May 27, Tuesday. Wednesday

Left Pueblo at 12:10 A.M. This morning when I got up about six we were crossing La Veta pass. Reached Alamosa at 7:30, had breakfast and then changed to the narrow gauge that runs to Durango. The rich scenery the pass to Chama was very pretty as the train wound about through the hills for some distance to gain the proper altitude. We were at 10,000 feet for two hours or more. Reached Chama about 1:15. Chama is a town of about 500 inhabitants in a small valley with the Chama River passing through it. Behind the town is a broad flat covered with pines.

Cattle were along the streets were about half in leaf and apparently warm weather is just coming. The day was warm and clear.

Saw Mr. Naylor [illegible] The train on which I came in and President of the Chama Pool and Gun Club and he told me that if we had time no difficulty in getting the use of their cabin.

Mr. C. McFadden rendered me great service by giving me information and did all [illegible] Carroll and Mr. Rice and me or two other members of the club. They said that last year E. W. Grubb of Colorado Springs rented

they had had at the lake as a result endeavored to form a shooting club and lease the lake for a preserve. also to prevent this the Chama men threw in with the New Mexico Game Protective Association and had the place made a reserve or something so to do. There is disagreement among the New Mexico men however and the Chama men have pulled out of the alliance. They claim that the Albuquerque men want the shooting like it used to be that shooting will be better in the lake below in the southern part of the state.

We made camp at the lake and I went over to the lake where the hunting season is on. It is not much of a hunting resort. There are a few ducks and geese to be seen but not many. It is said that the lake freezes in November or December and remains frozen until January. The place is out of the way & I am glad I have visited it. I engaged a camp ground tonight and a Ford truck to take me over to the lake.

May 23, Thursday.

Was up this morning at six, shaved had breakfast and then did some writing until about 8.30. As in many other small towns people seem to get around late in the morning. As there was some doubt as to whether

or not the camp at cabin at Stinking Lake had been to Ken. He and the cooking utensils etc. stolen I was glad to accept the offer of a loan of some dishes etc. from Mr. Percy Well. Mr. Well is in the sheep business and has a number of camps so that he had abundance of skillets, plates + other camp utensils. I had to buy only a few things to help fill in and complete the outfit. Bought a bill of Good at H. L. Halls store paying for it on Form 5, amount $32.05. Took some time to get this in order that it might be mailed. Jimmy Burnet who is going with me a prospector has been on a toot but looked pretty good this morning.

Mr. Cal McFadden was of great aid to me in getting an outfit together and in arranging other details.

At 12:30 we were ready and loaded for a start. The load was carried in a Ford truck and was not heavy though rather bulky. The distance from Chama to Stinking Lake is only about 35 miles but we were four hours in making it. The road led south through a Mexican village called Brazos and then to Park View. Leaving Park View we went down a bad hill across a stone flat to a bridge on the Brazos River and then on toward El Vado. From Park View the road was bad for most of the way. We passed through one area where there was still a good gra

pine. An alkaline stream, known as Willow Creek was absolutely Barren and had over no willows along it. On several places the road crossed gullies to get down and out more than fifteen feet wide at the top. I expected to see the car break down in one of them but we pulled through all right. Many times down hard hills where the road crossed at a dangerous slope. The narrow bridge across a dry gully was badly rotted enough for the car but held up under the weight though the old logs on which it was built creaked dangerously. Like other bridges this one was made of 8 or 10 inch logs laid side by side with no attempt at flattening the upper surfaces.

On crossing a narrow gauge railroad that runs down to El Vado we blew out both hind tires and had to stop to change them. From here we struck west toward Stinking Lake or Lake Burford as it is now known.

About 2 or 3 miles from the lake Prosper was passed a small lake about half a mile long that apparently is supplied from the main lake. It was shallow and very low. A few Spoonbills and Mallards on it.

We reached the cabin of the Chama Rod and Gun Club at about 4:30 and found the door open and

nothing left in the way of furniture or supplies save a bench or two, a table ~~and~~ a cookstove and two boats. We unloaded the car in short order and put the stuff on the porch. Jimmy began to clean up while I carried in the stuff. By noon we had the place cleaned up ~~and~~ our stuff unpacked and everything in order. I made a mattress of my poncho stuffing the sides and stuffed it with the dried stems of last years growth of Scirpus maritimus. A small duffel bag stuffed with dried salt grass made a good pillow.

We found a pair of ospreys in a large about ¼ mile of the shack. From the cabin I could see the nest with no trouble. The water was soft which not absolutely clear and to contain no alkali. But the spring it was running well but formed salty holes below. There were fifteen or twenty large cottonwoods here and a few Salix (willow) ~~trees~~ some of the cottonwoods had leaves just starting while in others the buds were merely swollen. ~~The~~ Some of the willows had leaves half out and were beginning to blossom. Others had unfurled both still.

The season seems very early to me. As plant growth is just beginning through the days and seems just enough for summer. At the lake

Scirpus occidentalis in front of the cabin is just starting. Grass has been killed by frost. Salt grass has made no growth as yet.

Everything is parched dry and rain is badly needed. Stock are doing fair. Range land all range is well stocked.

The cabin of the Chama Rod and Gun Club is a single roomed building built of adobe bricks with a corrugated iron roof. Inside it measures 16 feet wide by about 36 feet long. The roof is high and there is a fireplace in one end and a cook stove in the other. The floor is of boards and the front door opens on a porch which looks to the west across the lake. Beyond the lake are low hills covered with pine and cedar with deep brown down. The grass in the swamp was beautiful and birds attracted. Ducks, Coots and yellow headed blackbirds sang boisterously.

The cabin is on a large mesa-like hill about 50 feet above the lake and a hundred yards from the shore. After a good supper it turned in about nine.

Was glad to get out here as a storm is threatening.

May 24, Friday.

Last night, as the first in camp I did not sleep as well as I might of course. Coots called and chuckled all night long, yellowlegs sang at intervals and there were various other night noises. The moon was full and it was bright as day outside shining the first part of the night. Mice wakened me several times by running up on my blankets and finally I got up and set seven traps, six on the floor and one on the table. They snapped at intervals during the night and in the morning I had caught 6 Peromyscus (Peromyscus maniculatus) Four were adults and two young. Of the adults there were females and one a male. I made up a pair and preserved one as a skeleton. They were quite large ranging from 160-173 mm long. I secured 12 small lots of fleas from them.

Got up at 6 walked up to the spring, washed and brought back a pail of water. The sky was overcast and the thermometer stood at about 40°. After breakfast we put one of the boats in the water to soak up and then I followed down along the lake shore beginning my census of the birds here. This season I shall include all ducks & waterbirds that are breeding and all of the other breeding marsh

birds (Blackbirds, Song Sparrows & yellow throats) getting the numbers so nearly all of them. This morning I worked down along the shore south from the cabin to a rocky point on the south shore of the small east bay where this small inlet joins the main lake. The ~~hills~~ shore rises slightly in slopes covered with sage brush immediately back of a narrow beach that varies from forty to fifty feet wide at the cabin to a foot or two at certain jutting rock headlands. There is one of these rocky headlands immediately south of the cabin and five others beyond it. Another marks the furthest point reached today.

The lake seems to be between 4 and 5 feet below high water mark. The shore slopes out at a gentle slope beneath the water and all along there for very short distances at each of the headlands are a band of Scirpus occidentalis that ranges from 10 to 20 or 40 feet wide. ~~Most of this is but~~ The sand growth is that starting some from the cabin to the first headland the tops of the growth have been touched by frost. Beyond the shallow is more shelving and the reed beds are beginning to form pushing clusters and the growth is taller being 2 to 4 feet tall. The lake is apparently higher this year as the bridge of sand

last years growth extends allowing from 2 to 4 feet higher than the present water level.

The water in the lake is muddy and brown and is slightly salty alkali to taste a white scale forms in small quantities along the shore in some places. We are unable to use it for washing or at any rate do not care to do so.

As stated above the shore is steep and is very rocky. The rock exposure here is a whitish yellow sandstone that breaks off in slabs and chunks.

Along the shore as far as I went were scattered black willows, Salix wrightii, and a few that I think are gray willows, Salix exigua. All are just coming into leaf and a good many of the black willows are just beginning to bloom. On the flowers I saw many honey bees so that there must be bee trees near. Early in the morning I saw two other Hymenoptera but about eleven it became warm and small bees were swarming about the blooms. Ribes also is in bloom and attracted bees. I caught a few but had no net with me today. And one place I saw where large ants had cut into the flower heads of the black willow and were cutting them off before they bloomed. Specimens of the ants

Ducks very fairly common, Coots abundant and Eared Grebes very abundant. Following is census for area covered. All of these birds from these acres seemed paired or else pairing and are apparently on their breeding grounds. Further watching however is the only means of proving that.

Canvasback	1 pair
Gadwall	5 "
Mallard	5 "
Cinnamon Teal	2 "
Redhead	2 "
Ruddy	9 "
Coot	42 individuals
Eared Grebe	65 "
Pied-billed Grebe	6 "
Song sparrow	7 "
Yellow-throat	3 males
Yellow-head	7 "
Redwing	1 "

Coots and Grebes were very tame and ducks were not very wild. The high shoreline with its abrupt slope immediately above the water is peculiarly favorable for the observation of the birds as it is possible to sit on a flat rock partly concealed in the sage brush and watch them without difficulty.

Sheep are being run all through here and have cleaned out all grass.

Returned home via the road and worked along through the sage grown flats. Prairie dogs are scattered

all thorough here.

Saw one Eutaenia elegans swim in the rushes along the lake. Frogs are very common in the seep holes below the spring. Jimmy says he saw a weasel today.

Came across a warning sign put out by the Biological Survey to prevent theft of traps.

After dinner I skinned two of the mice and made another into a skeleton & then wrote up yesterday's notes. It clouded up again and the wind came up strong from the northeast. We had one slight sprinkle of ~~snow~~ rain in the afternoon.

About three when the ~~sun~~ came out for a time I walked up to the spring. One large black willow here is in full bloom and has large numbers of honey bees on it. Very few other Hymenoptera come to it. The wind was whipping it badly but the bees worked away persistently. We sunk a water barrel in the spring to soak up in order that we may get more water to camp.

Wrote for an hour before supper and after eating took a short walk along the lake shore below the cabin. On a broad flat at the mouth of the draw containing the spring were scattered many ants nests built up in a rounded form

from 18 inches to 2 feet high. Each was
about 1st or 20 through. The lower sides
formed an abrupt angle with the
ground and this flat portion
contained a scant growth of salt
grass. The ants evidently had built
up to get above danger of drowning
out in Spring water and had been
aided substantially by the salt grass
which gave them a firm foundation.
The whole looked like a collection of
small hay cocks. Last night in the
dark I could distinguish them for
muskrat houses.

Went to bed about 9:00

May 25, Saturday.

The wind blew hard last night and
it turned considerably colder. Thermometer
must have stood a 55° this morn. There
was no frost as it is too dry.

This morning I had seven more
Peromyscus in my traps, of which five
were immature and two adult. This
may be about the last of those inhabiting
the cabin as I had a dozen traps set
and seem only two spring.

We slept with the door closed last
night as the wind gave us plenty
of ventilation. I slept soundly all night
and did not awaken until six.

Went up to the spring for water
and to wash up. The air was cold and
the sky clear. The sun had not yet
come up over the hills. Those old

formings readily explain the [illegible]
[illegible] of the vegetation.

[illegible] a good breakfast of oatmeal, [illegible] hot cakes and coffee [illegible] cared for the insects collected yesterday and then secured a few more flies from the Pronopsis.

About 7:45 I set across over the hill back of the cabin to the East Bay and then worked from the mouth of the East Bay to the head of the South arm of the lake. This shore was indented by two shallow inlets. On the first of these I found the usual [illegible] growth of weeds accidentalis with [illegible] and the stream bottoms rising immediately back of the shore. Beside the [illegible] here on the second part of the second indentation there was the [illegible] growth, and the shore line back of the beach was low. A low undulating flat led back towards the hills at this end of the lake. [illegible] beach made of [illegible] for that I was at the head of the East Bay. A sharp hardy knee [illegible] the [illegible] [illegible] about three feet from the [illegible] Later I had [illegible] through the cabin [illegible] Mexican rich up in a berry which [illegible] two five gallon [illegible]

Well, so the master who sent me the Anas sp.? The man skinned them & cut off the bills, head and tried it down, then removed the water Knee and started to fill them. She will [illegible] with, & likely and he might have secured good use by doing so. He's rich & [illegible] this Harbour and I found between 20 & 30 Coots and as many Ducks [illegible] in a bay close to the open water. There I did not examine as [illegible] birds as there was only a small [illegible] of 8 ships but I [illegible] they might [illegible]. These are [illegible] and included in the following account.

The following is a [illegible] list of species met with & procured by me during the [illegible]:

Gadwall	10 pairs
Mallard	3 "
Anas sp.	1 ♂?
Redhead	2 pairs
Lesser Scaup	6 pairs + 2 ♂♂
Ruddy Duck	16 "
Cinnamon Teal	1 "
Spoonbill	1 "
Blue-winged Teal	1 "
Cinnamon Teal	1 "
Pied-billed grebe	4 individuals
Eared grebe	46 "
Song Sparrow	4 "
Coot	20 "

Yellowthroat 3 males
Yellowhead. 29 "
Redwing 2 "
Virginia Rail 1 individual (heard).

The ducks were fairly tame in general while some of the Ruddies and Gadwall paid little attention to me. The birds that I listed above all seemed to me to be on their breeding grounds with the possible exception of the Bluebills. Concerning these I am uncertain.

The Scirpus growth is low along this area as in that surveyed yesterday. Nowhere yet have I seen any other aquatic growth save of a green alga which is fairly common. In some places along the shore here I found small areas covered with a loose white alkali.

Returning I climbed up on the ridge to the east where I had a good view of the Lake. The shoreline is very irregular. A higher ridge was covered with a heavy and scattered stand of Pinus Ponderosa. Among this were a few good sized trees of Pinus Arachoptera. An Amelanchier (perhaps oreophila specimens collected) and a Pinus canadinsis (identified O.K.) in the coming into bloom. Also present flowering catkins of willow.

I collected all few more birds but the wind blew a gale all day save for a few short intervals so that much collecting

was a failure.

Jeff Indian, mountain, & perhaps one of the forest rangers passed on the trail ~~without~~ nodding and thought it was my fifty fat man.

Returned to camp at 12:20 and found that Jim had prepared a delicious lunch of boiled ham, mashed potatoes, beans (canned) and canned peaches.

After dinner I posed in few photos using a large flat rock ~~as~~ underfoot for a weight & then set down to look at the view. Found that it was ~~pretty~~ somewhat as the rocks 20 skipped if into the lake.

Shot went to work on my notes.

Saw chipmunk (one or two) plenty in town this morning.

This evening Jimmy and I walked over the hill and on out a ways for a short distance returning at dark.

On the morning I saw an enormous bull snake in a prairie dog town near the ancient spillway of the lake. It lay perfectly quiet and I stepped within three feet of it before I saw it. It was at least five feet long and may well have been more. Apparently it had recently shed as its colors were rich and beautiful.

At dusk a weigh Myotis passed the cabin.

May 26, Sunday.

It was cold last night and this morning I found a scum of ice in the step holes below the spring.

When the sun came over the hill back of the cabin it began to warm up it was some pleasant with a clear sky and the lake as smooth as glass. The yellowlegs and coots were rather quiet until this time but then became very noisy.

After breakfast I walked down over the hill toward the East Bay. This is the old outlet of the lake but now is entirely closed. A valley 1/4 to 1/2 mile wide leads down to the east and ~~north east~~ north east between high sandstone cliffs that rise 500 to 600 feet above. There is no water leaving the lake at all now. A mile below the natural dam closing the lake are two small lakes formed evidently by seepage from the large lake. On the middle of the valley are numerous warm alkaline spots that evidently are ponds in dry seasons. Water action in cutting these valleys must have been enormous.

After examining this area I cut in to a small draw on the north side and climbed to the top of the hill east of the cabin. This was 600 to 800 feet above the valley. I have become accustomed to the altitude by now and experienced little difficulty

in climbing. The top of the hill was bare with gently sloping terraces leading into open parks of small size covered with sage. A Juniper and Pinus edulis formed a large part of the tree growth and scattered through were many Pinus ponderosa. Small scrub oaks were present in numbers growing in clumps 3 to 6 feet high. Artemisia tridentata (Nuttall) was common and was coming into bloom. On this hill protected from the wind plant growth seems more advanced than near the lake.

There were comparatively few insects up here so that I did not get many today.

Returned to the Cabin at noon and then about two climbed back on the hill for two or three hours. Several birds were seen and I secured both Nuthatches, Mountain Chickadee, Both Bluebirds, Western Tanager and a Rhinichneus Vireo & an unidentified (wrightii ?). There is absolutely no water here so that the birds must get their drink without it or go down to the lake.

The wind rose about nine in the morning and blew steadily all day. In the afternoon I found it quite cool.

I found a small gray cottontail in the morning and I tried

to select it out [illegible] of. Started in both above the lake above and came down into the lake probably for food + water. It seemed small headed very gray in color.

I saw one Chipmunk in the hill today. several Ichneumons noted.

Wren is back at nest box. Very tired.

Had two Peromyscus in traps this morning, ~~both~~ one adult, a large female and one immature - Peromyscus m. nubiterrae (Merriam)

May 27, Monday.

The high wind died down last night with the sun and it turned very cold. This morning I found a thin shell of ice on the lake water among the rushes bordering the shore and there was ice an eighth of an inch thick on water standing in the boat. The first night that we were here has been the warmest night that we have had. The low temperatures at night run at the lake explains the backwardness of the season here.

Had five new Peromyscus in the traps this morning, four ~~adult~~ and one adult.

The air was sharp and cold although the sun was warm and I was glad to wear a canvas coat when I started out about seven thirty. Took the road around across a narrow span to the point where and then headed out that or down the west side of the south

lake covering the shoreline from the first point opposite the cabin to a point opposite the head of the east bay. The lake water is grey and opaque in color and alkaline to the taste. Objects three inches below the surface are barely visible. Opposite the cabin I found that the water was six feet deep and the bottom soft and muddy.

I worked along the shores of several small bays that indented the shoreline covering favorable ground but ending up each time a mile from the cabin. The shoreline here offered no peculiarities that have not been described. Over the dead & dying specimens recidentales formed mats along the shoreline with new growth appearing in the water outside. Sand was mixed with the dead Salsola. Of what I take to be Scirpus paludosus (said to be S. campestris) I am not certain if the identification as at present it is badly weathered, evening buds, and new growth is just starting. All vegetable growth that should grow in standing water. There is no green growth in shore & no yet clear of the debris that was left by the last ice out.

Two small cottonwoods were just coming into leaf and a half dozen small black willows were in blossom. On the steep slope that faced the

north I found a heavy growth of 2 shrubs; Ribes aureum and lacustre were nearly in leaf and were covered with bloom. Also found associated with them an Amelanchier that (is really oreophila) I think may be oreophila. If this is true all three are transitional forms. With them I found a few of the low Ribes like plant (Ribes canadense var. villosa) with small globular inflorescence that I have not yet located. All these grow immediately about the margin of the lake.

There were many bees on Amelanchier today, though heretofore scarcely any. Saw nothing else of interest. Collected a large Bombus worker, otherwise first I have seen here. Very little else in the way of insects now. Yesterday I tried fishing on Perigan Creek but found nothing. Saw a few ants and a few butterflies. There are a few dragon flies and Damsel flies about and yesterday I secured one robber fly. No bees about save Eleodes which are abundant. They stand on their heads with abdomen pointing up when touched and sometimes exude a fetid fluid in a drop at the tip of the abdomen.

At the head of the bay were a large area of sandy ground in which I found tracks of 2 coyotes, 1 wolf, and one badger. All fresh

Saturday in a similar area of
excavated tracks of 1 badger and 1
Coyote. This evening I found also
the dead body of another thrush
in a crevice of rock and wedged
in with sticks. Perhaps some bird
shrike makes to prevent this body from
getting at it.

Returning I cut across the
large grass flats directly to the
bridge. This area [illegible] as the
bridge is at elevation of 70 feet
high and on it hundreds of
Tree Blue birds in shooting season. Blue
jays also out in a body they
keep the flocks moving and the
hawks about so that flocks pass
from the main lake to the south
bay. I found one such flock
with great difficulty I shall obtain about
both I might and not.

I planned to shoot a female
mallard today to skin and on
leaving a marsh I spied it and at
once shot the duck that swam
in from the reeds in front of it. To
my disgust I ascertained this
was a male Common Teal. It was
at once too late to prevent shooting
this duck was then in body of
a Can as very little food for other
birds as yet. I shall not spoil today
this morning by cleaning the

Green Herons and Acorn from Hunting
Stems of [illegible] & [illegible] residents this.
Woodcock & Snipe are also residents
(Dead) washed up [illegible] but
have seen no living ones.

Ambystoma are said to be common
but as yet I have encountered none.

The following marsh birds were seen
in this area.

Redhead	2	pairs
Mallard	3	"
Ruddy	3	"
Goldeneye	3	"
Sawbill	1	"
Hooded Merg	2	"
Cinnamon Teal	1	"
Virginia Rail	1	individual
Eared Grebe	62	"
Pied-billed Grebe	3	"
Coot	30	"
Yellowhead	11	males
[illegible]	2	"
Long Sparrow	5	individuals.

Ducks second last
Abundant [illegible] in the other shore
where vegetation (marsh) is slightly
more advanced. I saw one female
nest of the Yellowhead today that
contained eggs but could not
get to it. This is the first nest of
any sort that I have seen in the
marsh.

On returning I shot a male Cinnamon Teal that was resting on a ground shore in company with a male mallard. This bird had evidently finished moulting. The plumage was slightly worn and the wing tips especially showed wear. The cloaca showed no enlargement or congestion and the penis was shrunken and was beginning to shrivel somewhat. The testes were shrinking though still about 3/4 maximum size. Their surface appeared rough and wrinkled and they were yellow in color. This bird may have bred here but it considering the season I consider it hardly a likely thing. It seems more probable that it might have come in from some lower altitude. Its association with the mallard might indicate that it also had finished moulting and that these two were resting preparatory to moult into the eclipse plumage. The head was very thin and [illegible]

May 28 Lucaya.

Somewhat Warmer last night temperature this morning about 38° F. During the night a very strong wind blew from the south for a short time. Only one Peromyscus in traps this morning. I found one young one crushed under my pillow. This makes 22 in all.

I crossed the lake in the boat this morning and beginning where I left off yesterday completed the survey of the South Bay. Two or three small bays head back from the borders and are well-fitted for birds. The southern shore line for two miles at least was open and barren. The water is about 3½ feet below the normal level this belt here is composed of hardened mud in which has raised a white somewhat fluffy efflorescence of alkali. This band is from four to thirty or forty feet wide. Below it is a band of Scirpus paludosus (Cyperaceae) dead and brown. This may have been dead for two years for it is well broken down and in places almost obliterated. Back of this was a gradual slope towards the hills which was more sparingly covered with large trees mostly

In one place that I passed today a rocky point with a rock strewn beach and a few feet wide came down

to the waters edge. The water bottom sloped away abruptly. For a distance of 200 feet from land and was deep enough to find the water fairly clear. In that I could see bottom at a depth of nearly 3 feet.

The bulk of the ducks feeding in this area consisted of Redheads, Canvasbacks, Ruddy Ducks and Lesser Scaup. A few of the rarer species were also present.

The following breeding records were noted.

Redhead	6 pairs
Gadwall	10 "
Lesser Scaup	3 "
Mallard	3 "
Spoonbill	1 "
Ruddy	1 "
Canvasback Red	1 "
Green-winged Teal	1 "
Coot	41 individuals
Pied-billed Grebe	4 "
Coot	13 "
Young Coots	6 "
Yellowhead	28 males
Bullthroat	1 "

In addition to this I found 11 Coots and 25 Coot Grebe in the upper end of south Bay where there was no reason for supposing that they were breeding.

Six Male Cinnamon Teal were seen that were unaccompanied by females. On two instances two were together. On one of these occasions the males were trying to flirt with a female when two others chased jealously after the mate. One other bird was on Carpenter with a male Mallard. The sixth bird was alone. There may be explanation for the presence of these single birds may be that they have not paired or nested else at a lower altitude and have come up here to molt. Ducks certainly do not seem to be incubating here as yet though it is possible that they may be in smaller lakes not far off.

A heavy wind came up about 4 oclock and I continued all the afternoon in heavy sleeping coat in order to keep this from blowing and after the wind blew it into the lake & it was gone for my return. (coat stolen!)

I saw a coyote and a badger were seen in the early show. I saw where a male Hudsonian Curlew had been eaten by some animal and where a Hawk had eaten a Coot.

In the afternoon I went over to the Spring and took a bath.

Potamogeton (Johnsoni) is making some growth in protected bays and ducks come in to feed on it.

May 29, Wednesday.

It was cold last night but apparently the temperature did not quite reach the freezing point. This morning it was cloudy in the north and east but soon cleared away. The air remained sharp and cold until about eight thirty.

Yesterday I put my hunting coat in a bush across the lake and apparently someone stole it as it turned up missing and I could not find it.

At seven thirty I left the cabin and crossed to a point opposite in the row boat, leaving the boat there I worked around the south and west shores of the main lake to a point directly opposite the cabin. For about two miles conditions are favorable for water birds. About half of the remaining distance may be of better cover but with warmer weather as there is indication that Scirpus growth may appear. My remaining distance however has a bare expanse of mud for a shoreline that is either encrusted with white alkali or else is dried mud baked in the sun. Back of this is an area of Scirpus spp. Indoors that shows no indication of new growth. I found a few dead heads in this growth that it was last years growth

apparently the lake was about three feet higher last year than it is now. From studying the shoreline I believe that the lake has declined from 6 to 10 inches with two dry years.

An area was fenced off here and two 150 x 6 muddy banks in it. There are now five Ducks and two pairs at the lake in all but 1000 head. All are wild and this territory is used only as a feeding ground.

Sprouts of an aquatic Polygonum amphibium are beginning to appear in the water. The stem that I worked today is exposed and vegetation on it is low. A small cottonwood tree just breaking into leaf.

One isolated pool on the lake shore was strongly salin to the taste.

Ducks are apparently in number of Common Teal here now that have finished breeding. I saw one flock of 6 today and four or five single birds. In addition I saw one male Mallard alone and 4 together in another place. These birds must have bred somewhere else as they have not been here yet. A few Shovellers & possibly a few others are from their actions beginning to lay but as yet I have not seen single ducks nest. It begins to look

as though this locality is more favorable to ducks after the gathering place for feeding ducks that it is for the breeding grounds.

Following birds were recorded today:

Loon & comp	1 pair
Ruddy D.	5 "
Mallard	4 "
Redhead	4 "
Canvasback	2 "
Gadwall	11 "
Am. American Wid	5 "
Green-winged Teal	5 "
Shoveller	3 "
Hooded Merganser	21 males
Redwing	2 "
Coot	35 individuals
Eared Grebe	52 "
Horned Grebe	8 "

Besides these there was a raft of about 75 coots in the open bay further on but were not preparing to breed.

Found a newly fledged coot nest in the reeds today.

Collected Black Crowned Night Heron (an immature) I was wading in a dead tree near the lagoon.

Returned to the cabin at noon. This afternoon I spent in writing notes and in preparing a few specimens. Lawrence

evening I made out as much of my expense account as I could in readiness for the end of the month.

The wind blew a gale all the afternoon as usual.

After the evening meal I walked up past the spring. Discovered an alkaline efflorescence about our spring but so far it has harmed neither of us. The large cottonwood trees are half leaved out now and are very pretty. On the flat above the spring we found two of the spring holes and at one I collected the species of weeds. The wind was less strong here and it seemed a relief to get away from it.

Went to bed at nine though it was still light.

May 30, Thursday.

This morning the air was warmer when I got up. About six and it stood somewhere around 40 or 42 degrees. The sky was overcast and remained so all day. It blew hard from the east all day. I left the cabin at about 7.20 and went up the ridge and then the Lakeshore until I reached the point opposite the cabin where I left off yesterday, thus completing the circuit of the entire Lake. I judge that it is about 16 or 18 miles in

circumference.

I got about 1/3 of the distance around the north shore the beach was either rock and or alkaline mud. Elsewhere it was studded by dead specimens of S. occidentalis & S. validus. Clumps of S. occidentalis were growing off the point the principle tall plant was the Shoreline Jaumea & Salt Bush. It was about this area that I noticed a much less valuable use as a Breeding area. The small number of Coot & Grebes on this part of the lake was noticeable.

The warm night brought in a few birds as I saw four Stilts, three Piping billed Gulls and a flock of American Merganser. A pair of Sandpipers seem to have passed on as through this marsh has wide favorable for them I saw but one during the forenoon.

Two fresh coyote tracks were seen and I saw also something that looked like a jackrabbit. Yesterday I saw two coyotes, a skunk and a badger.

The lake was calm and smooth as glass but about eleven the wind began to come up again.

Near this beach I found numerous [illegible] of Polyporus [illegible] [illegible] [illegible] [illegible] with white [illegible].

I found some specimens of Bittern Pellets with seeds still in the stomach apparent. These have been completely stripped and bearing only the core seeds.

Following breeding birds were seen last today.

Mallard	14 pairs	
Pochard	4 "	
Shoveller	2 "	Killdeer 1 pair
Ruddy	20 "	
Gadwall	14 "	
Blue-winged Teal	2 "	
Cinnamon Teal	2 "	
Wigeon	1 "	
Yellow-head	80 males	
Redwing	6 "	
Yellow-throat	3 "	
Pied-bill Grebe	4 individuals	
Eared Grebe	10 "	
Coot	72 "	
Song Sparrow	7 "	

In addition to these a flock of 20 eared grebe were feeding in a close flock in open water. These birds not breeding as yet ready to pair.

Saw us here with the thing and eaten me made [illegible] all.

Leonard Hall, Mr. Sullivan, Mr. Leigh, & Mr. W. Browning drove in and called to Camp for the night. Sat and talked with them [illegible] nearly ten.

me that I have heard since I have been here. Mr. Pineau stated that there were 4,000 or 5,000 acres of timber on the cabin at present.

left El Vado about two, stopping a little up the road for lunch on the way and reached camp about 5:00 P.M. The men who remained overnight again hauled a load of wood for us so there is none nearer than half a mile from the cabin.

June 1, Saturday.

Heard Coyotes howling again last night. Pineau came down to breakfast and about 7:30 we left the cabin following the lake shore down around the East Bay and then returning to the cabin about ten as he wished to go to El Vado on business again.

The morning was cool but warmer than it has been and there was no wind until afternoon. Vegetation shows a great advance here today over what it was on my last visit. Typical shrubs, Ribes, Amelanchier etc., were well out and gray willow was starting.

Scirpus validus shows a growth of nearly a foot above what it was on my last visit. I examined a considerable bed of Scirpus

May 19 - 31, 1918, expense.

J. Barnett Form 3	18.00
H. L. Hall Form 5 (groceries.)	32.05
Wm. Rice " " (auto service)	12.00
Transportation requests	45.00
New Mexico Lumber Co. Form 5 (groceries	11.00
Form 4 misc. expense	15.35
~~130.90~~	
133.40	
Original authorization	300.00
May expense	~~130.40~~
remaining	~~169.10~~
	166.60

Pelecanus going over the last years growth and found that practically all of the seeds had been eaten out apparently by birds. This must be quite a source of food supply here.

We looked carefully for tracks & saw those of coyote, bobcats and one of a badger.

There has been a surprising change in the water bird life. The birds have in part left the immediate vicinity of the cabin but I had expected to see more here. As it was the following were all that were seen

Ruddy duck	2 pairs
Gadwall	2 "
Mallard	3 "
Cinnamon Teal	2 "
Coot	14 individuals
Eared Grebe	20 "

The song sparrows, yellowthroats & blackbirds remained about the same. Herders have been running sheep on this peninsula for two or three days and it may be that these have frightened the birds out.

Mr. Parsons said that old timers told him that thirty years ago the lake was 12 or 15 feet higher than now and that it seems to drop a little each year. The lower

Lakes also were much higher than at present and formed a second large lake. It would be that during April and the first few days of May that there were a large number of ducks present. There by that time they had left in great part by the middle of the latter month.

Returning to the cabin about 10:30 I spent the rest of the forenoon in writing notes made yesterday, on entering plant specimens in my catalog which has just come and in getting some insects packed. This occupied me after dinner until 2 P.M.

At that time I walked across the hill to Clear Lake slipping up on it through the sage brush. This lake lies immediately along the travelled road so that birds on it are more or less disturbed by travel. I met with 500 head of cattle passed while I was there driving the birds into the lower end of the lake. There is little cover here for as already noted some one has fenced the reeds. New growth is coming in rapidly however.

There must be considerable movement going on among ducks at present. When I last visited the lake there was a large number

Spoonbills here and little else. Today there were only a few Spoonbills and the bulk of the flocks was made up of Bluebills and Gadwall.

Following is a count of the birds observed.

Gadwall	18 pairs.
Spoonbill	4 "
Mallard	1 "
Ruddy	2 "
Lesser Scaup	3 25 ♀ 23.
Eared Grebe	25 individuals
Pied billed grebe	2 " (pr. 2 pairs)
Coot	24 "

Some of the Bluebills seemed to be paired and others not. Many of the males kept by themselves paying no attention to the females. Quite a few others swimming in pairs.

Took some photographs to show conditions around the lake and then went over to the spring where I collected a few water insects.

Insect life in the last two days has become much more abundant and various species are appearing in the sage brush. Robber flies are now fairly common and are good on long wings are appearing.

I saw either bat last night but not well enough to identify it.

Mr. Pineau was in for supper this evening.

June 2, Sunday.

A skunk passed around the cabin last night.

This morning it was quite cold and I imagine that a thermometer would have registered about 38° F. but it warmed up at once however and during the afternoon was quite hot. There was little wind and it was a very pleasant day all around. About about thirty rods off the cabin and cut across the hill passing the east Bay and going up the first gulch to the South beyond it. This narrow canyon opened out with a broad alluvial fan that showed a trace of green fern growing grass into the flat marking the ancient outlet of the lake. At its mouth the sides of the gulch were clothed covered with scattered patches of oak brush half in leaf.

Above this were shrubs of Ribes melanocarpa and Cornus nuttallii just coming into bloom. another shrub of low growth 1-3 ft high (#482) was in leaf and showed buds. Ribes sibericum showed forming fruit.

On the lower part of the gulch were a few pines & cedars but higher up these were replaced almost entirely by a fine growth of beautiful yellow pines. I found one clump of Pseudotsuga

mucronata. The entire gulch which faced the north & east was practically all transition zone as was the ridge above. The sandy bottom of the dry run offered a good pathway at an easy slope. Near the top of the hill water appeared & good quality and had it not been for the steep the canyon would have made a good camp.

The ridge above was covered with a fine yellow pine forest. Birds were common along the gulch and added several to my list for this region. About 10:30 I started back as it had become very warm & was able to collect some interesting insects. Reached camp at 12:20.

After dinner I cleaned up a little & in a pool below the spring and jimmy and I carried back a five gallon keg of water.

Jobs cattle have come in here with a new herd of sheep and have been running them on the flat below the cabin. They were stopped in the evening for a drink of water.

There has been a surprising change in the lake in the past few days. I see very few blackbirds in front of the cabin now and even coots and Eared grebes have become less abundant. I am afraid that this is not much

of a breeding ground for waterfowl. The shrubs kept up a constant commotion in feeding and trailing along the lake shore and kept the birds of prey feeling scarce in the rushes.

Saw tracks of 3 coyotes today, one badger & one porcupine.

Citellus grammurus was fairly common in the gulch and I saw several chipmunks.

It was very warm this evening and remained so until dusk. As the sun went down large numbers of female ants emerged and started in flight. The flight was slow and the insects flew up and down in one place for a minute or two. About fifteen or twenty minutes later quantities of males came out. These were smaller and flew directly and rapidly so that they were difficult to capture.

At dusk one flock of six and another of seven Cummings Teal came in high up and dropped down to the lake. All were males.

June 3, Monday.

Last night it was remarkably warm all night. And this morning the temperature must have stood above 45°. The sun came up hot and it was quiet and windless all the forenoon.

I went to the south end of the lake

on the east shore making observations on the water birds. ~~March 31~~ June 1 marks the beginning of a second census of the breeding birds. I found the East Bay almost deserted but birds were abundant in the south arm of the lake.

The rushes have made a growth of from a foot to 18 inches. Grass & weeds have cast and afford good cover. Many new clumps have appeared above the water also.

Birds were busy mating and pairing. And I observed one Gadwall, one Mallard and one Canvasback that I am certain came from nests. A coot was seen with a brood.

Following is census for this area.

Gadwall	13 pairs	
Ruddy Duck	12 "	
Lesser Scaup	6 "	
Redhead	4 "	Spoonbill 4 pairs
Mallard	2 "	
Wigeon	1 "	
Blue-winged Teal	1 "	
Canvasback	1 "	
Eared Grebe	90 individuals	
Pied-billed grebe	8 "	
Coot	90 "	
Song Sparrow	5 "	
Yellow-headed Blackbird	15 males	
Yellow-throat	1 "	
Following		

A number of Coots & Eared Grebes were in the Garden south end of the lake but all seemed to be pairing now.

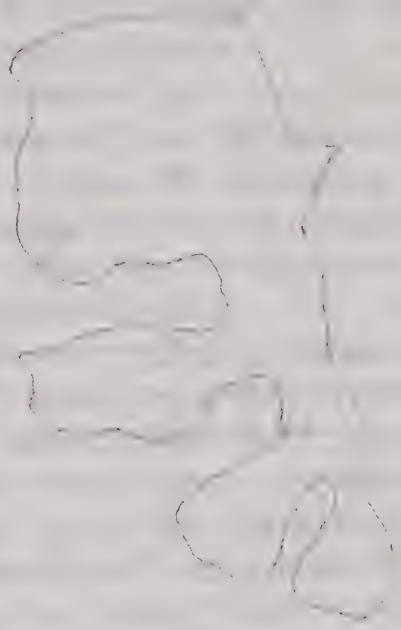
Some aquatic growth is starting and there are many larvae of Dragonflies in the water. Saw two dead Anopheles in the water & large sp. The mosquitoes & Flies must be packing in this.

At noon a heavy storm came with rain and finally hail that lasted for 20 minutes or more when the storm was over the ground was covered with the particles of ice. The sky remained overcast all the afternoon.

Grover ~~Vigil~~ Vigil) the Indian forest ranger for this area came in late in afternoon while I was out watching Yellowheaded Blackbirds. He remained for supper. He is a man about 38-40 and is a full blooded Jicarilla Apache. He is a broad heavy set man with broad shoulders and a broad flattened face. Wore his hair long in two braids.

He says that the lake is much 5 feet lower than last year when there was much water and that it began over about December 1 and then went out again early in March. According to him there are few ducks here until the birds begin to come south in October

Outline of building [illegible] from [illegible]
blueprint



He said that Stone Lake, Rock Lake, Camden Lake, as it is rapidly filled is nearly dry. The railroad company have dredged the creek into it to be deepened by the [illegible] side of their tracks.

It cleared up [illegible] was warm and pleasant in the evening.

June 4, Tuesday.

Most [illegible] of my foundations gone last Friday. Friends who were here may have picked it up.

At six this morning when I arose it was very foggy, and the fog did not leave the lake until 8:30 a.m. The sky was more or less overcast all day and the air was humid in great contrast to what it has been. It was cold last evening when I turned in so that I ballooned myself into my sleeping bag. It turned warm later and in consequence my sleep was restless & troubled. The water from the spring has been very murky since the rain, but is clearing up today.

About a quarter of eight the fog began to lift somewhat and I took the boat and crossed the lake to my boat landing on the ridge. The fog came rolling down the lake and seemed to pass right through the east Bay as it was rolling in

there were both the north and south.

I worked from the ridge south to the south end of the lake. A considerable growth of Potamogeton is appearing below the cabin and the flats along the west side of the south lake show some growth. Otherwise there is little change since I was here last. Senecio and Rubus which were in bloom then have now set their fruit. Lupine is in bloom and I caught a few interesting bees in it.

The shooting is census for today:

Ruddy Duck	17 pairs
Redhead	9 "
Gadwall	6 "
Mallard	6 "
Cinnamon Teal	2 "
Lesser Scaup	8 "
Shoveller	2 "
Eared Grebe	192 individuals.
Coot	77 "
Pied-billed Grebe	11 "
Song Sparrow	18 "
Yellowhead	56 males.

Below the cabin I flushed one female Redhead from a nest containing 8 eggs.

My men refused to work this morning so I returned to the cabin at a quarter of 12 and started

in to fix it. Shortly after dinner Mr. H. L. Hall came in and remained until about 3 P.M. He said that usually in Spring a little stream comes down the arroyo containing the Spring and spreads out across the flat below the cabin & the lake according to him is 2½ - 3 feet below normal. May is usually a wet month but June a dry one. May this year has been extremely dry.

The mountains far to the south which Pirtle told me were part of the Gallina Range are in reality the Nacimas Mountains. The Gallina Mountains are in reality further east below El Vado. The pointed hills immediately south of the lake are the Chupadores. The pass east of them is known as the Puerta Chiquita. The point south of the cabin is Rocky Point and the south of the ridge is Round Lake. Clear Lake is known as Hayden's Lake.

He says that the Geological Survey chart for this area is entirely off. I do that of have given up trying to reconcile it with the facts and do find them. He says that the bay below the Indian corral across the lake has been gradually sinking and that it has receded 2 good throws inland in the past 12 years.

He told me that many ducks
feed in the shoals and small lakes in
Cumbres Pass, at the head waters of
the Chama River.

He brought my mail from El Vado
and a new paper.

After he left I put in about
three hours in getting my gun in shape
and then went up my tracts in the
evening.

It was warm again this evening
and at dusk I had a glimpse of a
bat.

June 5, Wednesday.

This morning it was cool and
sharp but soon warmed up and
remained so throughout the day.

Before breakfast and after I finished
writing up notes made yesterday
and then at 7:45 rowed across
to my usual landing place and
then walked to the west side of
the lake.

Since the rain vegetation is
showing considerable growth and
traces of green are appearing in
the sage brush. New growths of
Carex occidentalis are appearing also
in shallow places in the lake.
There was little change in the
bird life here. I heard a common
teal, a gadwall and a mallard
that certainly had nests.

following breeding birds were recorded.

Ruddy	7 pairs
Redhead	13 "
Mallard	10 "
Cinnamon Teal	3 "
Gadwall	28 "
Spoonbill	9 "
Green-winged Teal	1 "
Oregon	1 "
Yellowhead	24 males
Eared grebe	92 individuals
Pied-billed grebe	2 "
Coot	50 "

Returning I crossed to the big Promontory and collected some bugs on a legume. Also found some interesting things on Baccharis glutinosa.

After dinner I wrote up some notes made this morning and then went over on the East Bay and collected insects on Choke Cherry again.

Bees were abundant and I got a few good flies and some butterflies. Coccinellids are becoming common.

Returned to the cabin at four & found there Yellowheaded Blackbirds and there had Sapporo. Wrote in notes and reports & office after eating.

Saw one fresh coyote track today and found one Kit fox den that apparently was tenanted. Found a mourning

Moss that had been plucked and partly eaten by some bird.

Returned to the cabin and finished my notes. After supper toward dusk a Sandpiper came in and alighted in some willows in the Ridge and I went over in the Boat and collected it. The presence of these birds at this season is explained by the late arrivals with some pairs on the breeding grounds of Bear Rain

It is still light now at nine but usually I go to bed then and get up at six.

June 6 Thursday.

It was hot and humid about last night but turned cooler in the night. This morning it was quite sharp but turned hot by ten and at noon I was glad to change to a Khaki shirt. Had breakfast at a quarter of seven and got the Insects collected yesterday and then at 7:30 left the cabin and walked around the north shore to the west side.

There is practically no change in vegetation around here save that the Equisetum is a tall luxuriant Halerpestes cymbalaria is coming into bloom and now Eleocharis palustris to sterilis.

Following is a list of the breeding birds as tabulated today.

Gadwall	16	pairs
Cinnamon Teal	1	"
Mallard	15	"
Green-winged Teal	3	"
Lesser Scaup	2	"
Redhead	1	"
Ruddy	9	"
Spoonbill	3	"
Eared Grebe	292	individuals.
Pied-billed grebe	2	"
Long Spurs	14	"
Yellowhead	41	males
Redwing	6	"

I found a number of single male Mallards, 13 in all. That acted as though their domestic cares for the season were over. Two Teal were partly in eclipse plumage. They were found alone or two or four together.

Six male Cinnamon Teal were found without mates and 4 Redheads.

The open shore on the west side of the lake is always a good spot for birds. This morning I flushed 25 pairs of Gadwalls here. They started out in one flock but at once split up into pairs many of the males displaying before the females.

The Coots on the north shore are

Well as the Eared Grebes all seem to be paired now.

Returned to the Cabin at noon. Found where something had eaten a female Mallard.

June 7, Friday.

It was warmer again last night not turning cold until near morning. Was up at six and was through breakfast by seven. Attended to some insects collected yesterday and did a little writing. About 7:30 went down toward the islands in the south Bay in the Rowboat.

Potamogeton is getting a good growth. Green algae is appearing in abundance in the tules. This growth has covered ~~Diamond~~ Hay Lake and is hugging the La Puerta.

I found a number of Amblystoma floating on the surface today. Most of them were dead though a few still showed life. One I drove them I started to pick it up.

Near the rocky points and where the knolls come down abruptly to the beach the bottom is hard and I can wade. Elsewhere the mud is almost bottomless. Off a rocky point below camp I found a depth of water of 9 feet.

There was little change in the

Situation among the ducks today: I flushed an Mallard hen near her nest but could not find it. Two Coots nests each containing 7 eggs were found and two others were noted that were started. Grebes apparently are not nesting yet but I saw what may be the beginning of their nests in masses of pond gook gathered together in the inlets.

Great numbers of the Chironomids continue to emerge and I found the water surface covered with their pupal cases and with insects that had drowned in emerging. Many moths were resting on the surface, others flying about. Eared Grebes were catching them.

There seems to be a great deal of animal life in the water now.

This is the first time that I have come out in the boat save to cross to the Ridge as I thought it best not to disturb the birds in the open water until they were more or less settled. Ducks in pairs are still shifting about in the lake more or less in finding and will probably continue to do so. This is true of Mallards, Gadwall, Teal and Spoonbills but not so much so of the Deep water ducks. I believe that the Ruddies are nearly sedatary.

Tried to get some bird pictures

today but without much success.
I found that rubber portable is
needed for such work.

Tried to collect some Mallards
but did not get a shot.

Landed on two islands today
and tramped over them without finding
a nest although I did flush one Mallard
It is probable that these islands are
used however as they are far from
feeding bands of sheep.

There is absolutely no chance for
ducks to nest here at this lake save
in the rushes as any nests in the
sagebrush at this season would
inevitably be destroyed. Even the small
ground nesting birds have to build in
hollows at the foot of burning trunks
of sage to obtain protection.

Returned to the cabin at noon.
Fifty degrees showed there on four buds
and Tony did some writing. Intercepted
a teamster going in to El Vado and
sent some letters in by him.

It clouded up after three and
and light showers fell. The wind
in the past few days has been remark-
ably violent. It is warmer too so
that saw in morning & evening dam
wearing Khaki shirts instead of flannels.

This evening it looked very stormy
off to the south. I walked up to the
point above the cabin and made a
double on mallards.

June 8, Saturday.

When I went out at six this morning it was clear the the lak lay spread as smoothly as glass. I skinned and salted the two Mallards shot last night first thing this morning. Both were in good flesh but had no fat on them at all. I believe that until the aquatic vegetation starts there is little food here for ducks.

About a quarter of nine I went down into the south lake again in the boat. I find that when I row directly across the open spaces that the ducks dive and rebs seem alarmed and that the ducks get up and fly. When I skirt the rushes however they pay little attention to me. Usually I paddle instead of rowing.

This morning I stopped ~~Co~~ twice pushing the boat into the rushes and remaining for a time to watch the life about me. Eared grebes, Coots and Ruddy Ducks formed the bulk of the birds present in the open water. Although ducks have become more retiring recently and are not so much in evidence.

Finally I crossed to a large

island. As I landed I flushed one Mallard hen that I am certain came from a nest. The great growths of Mistletoe Eucrypus stems surfaining from last years former are excellent place for ducks to hide their nests. And I doubt if I see many here.

This island keeps pace from ranging ships and so offered good cover for birds. Darwin accidentalis skirted the greater part of the island which contained about 40 acres. Above it was ~~growth~~ a band of Mangroves intwining with new growth just starting in it. The upper island was covered with sedge and near the lake shore I found areas of a succulent leaved atriplex ~~a~~ argentea & woody stemmed Atriplex canescens & Chickweed Lithidium alsinoides which have been eaten out by sheep I guess.

An open sand point was a convenient boost for ducks and here I see them whenever I pass standing out of the water.

I saw a number of dead Cormorants today and several living ones of large size. One lay just below the surface apparently drowning itself. When I passed in the boat it wriggled quickly down into the growth below.

Polygonum is making a tremendous growth here now and soon will cover the

entire lake surface. I find it reaching up when the water is five or six feet deep. Much algae comes with it so that on a hot day it will be difficult to get about on the water.

I saw two more Mallards in the flock from here. The males are in warm plumage but not yet molting.

The female was molting heavily on the breast.

The female had yesterday had laid 5 eggs. The one shot today was just about to begin to lay. Returned to the cabin at noon.

On the island were the following that should be added to my census count.

Yellow head	25
Song Sparrow	5

I saw twelve male Redheads in one flock today.

Worked on my notes and specimens in the afternoon. All of the Mallards were very thin as they had no fat on them at all.

We had a heavy shower late in the afternoon and it rained hard in the hills all around.

June 9, Sunday.

Clear and fine again this morning. About seven I crossed over to the East Gulch and climbed on up for a considerable distance into the mesa at the top. Beyond were I went last Sunday. I found a shallow valley with occasional open areas grown with sage, slopes covered with Yellow Pine and groves of Quaking aspen, a beautiful country all through. On north slopes were considerable areas of small trees of Pseudotsuga mucronata. The Quaking Aspen is Populus aurea. On the gulch near its mouth were a few Populus angustifolia.

Another shrub is in bloom and oaks are blossoming from those at 7000 but altitude. I beat a fine lot of Corythuca and a few Chrysops. Plants collected besides those mentioned: Mariposa Lily (Calochortus gunnisoni), Quercus utahensis, Xylosteon utahense, Carex wootoni.

It had rained hard up here and the grass was still wet. The gradual slopes have made climbing easy and the open forest was a welcome change after the undulating sage grown knolls about the lake. Quercus utahensis

Oaks up here grew in abundance and as the soil seemed deep and rich attained a height of from 10 to 20 feet

in some places. They are all freshly leaved out.

The air was fresh and cool all morning. Bird birds were very active. All in all it was a most pleasant forenoon and I regretted the necessity of leaving.

Besides the usual birds of I saw several Grace's Warbler, an Orange-crowned Warbler and a Cassin's Finch. There can be no question but that these hills are more Transition than Canadian even though Cedars do grow up here.

Returned to camp at one. I am very hot and wet tired when I first arrived.

Found yucca in bloom.

Spent most of the afternoon in caring for a few specimens and in writing up notes and a few letters. After supper Jimmy and I walked up the draw East the spring. The cottonwoods here are all in leaf now and as I expected all prove to be Populus angustifolia. They do not seem very healthy and have many dead limbs at the top. Above these trees was an open draw with occasional water holes. We found an excellent spring of pure fresh cold water and I made a bargain with a mexican boy to pack a Keg of it down to me

on his burro in the morning. The water'd have been rising just as surface from the same springs but oozed out some distance below. Lately so many bands of sheep have watered at it that it is getting very foul.

The slope above here has a fine growth of Yellow Pine on it. The evening was warm and pleasant.

June 10 Monday.

It was warm last night until nearly morning and this morning the lake lay calm and still. After breakfast I went down in the boat to the second peninsula and spent two hours and a half making observations on the birds below.

I saw the Ambystoma break at the surface repeatedly: apparently they were chasing after Chironomids. At times they made nearly a ripple at the surface but again they broke well above the surface as fish would.

Things are quieting down among the birds now. The coots are guarding their few young. Ducks visible in the open and even the Redsides have ceased displaying so incessantly.

About ten Dr. Antle arrived at the cabin and I went back to find there Mr. Thos. J. Ross, Superintendent for the New Mexico Lumber Co., at Elvado

and Mr. P.G. Redington & J.E. Hammonn
of Albuquerque. They had come by
auto to the Inscribed Stirling Lake, Lake Burford
and after a few hours we so went on.
They told me that they did not think
that a party of autoists expected
from Santa Fe and Albuquerque
would materialize. The ceremony
of christening consisted of putting up
the following notice on the cabin door.

June 10, 1918.

At the instance of the New Mexico Game
Protective Association, the National Geographic
Board of Wash. D.C. has approved the
recommendation that this body of water, heretofore
known as Stirling Lake be renamed Lake
Burford, in honor of the late Miles W.
Burford of Silver City, N.M. Mr. Burford was
President of the New Mexico Game Protective
Assn. and ~~[illegible]~~ did much
during his lifetime to further the interests
of game protection and conservation.
Acting as the authorized representatives
of the Southwestern Geographic Society and
the New Mexico Game Protective Assn. we
hereby formally declare this Lake to be
known henceforth as Lake Burford.

Paul G. Redington
Jos. E. Hammonn
both of Albuquerque, N.M.

On the afternoon I tried to get
some letters out but a way on that
I was expecting failed to pass.
It seems hard to have good

drinking water see more.

Tried to catch a wagon in order to send out some mail but missed it.

After Dinner I went up the draw to our water hole. First time I have been up here in several days. Found a Chara getting a good start in it a fact which speaks for itself. Jimmy says he like this water "because it has frogs in it and frog eat them tadpoles up. And them tadpoles are sure to breed disease". Elecocharis palustris is getting a fair start up here.

I collected four frogs and a specimen of Chara. The frogs are of two colors green and brown but seem all to be one species probably pipiens.

Collected quite a number of insects after Supper Jimmy and I took quite a walk about camp. I collected two fledgling Bluebirds and also two Newly hatched Meadowlarks. I note that the young in various passerine families seem to have the down arranged differently have made some drawings and shall try to collect a few in various groups.

Very warm this evening and we had a few mosquitoes when we went to bed.

June 11, Tuesday.

Clear hot and pleasant this morning with the lake like glass. Fifteen or twenty Bonapartis Gulls were scattered

over the water and I went out in the boat and shot one. Am uncertain as to New Mexico records for some of these things.

About 7:20 I left the cabin and walked down to the two small lakes below the East Bay. These lie in a flat valley that would contain the outlet of the lake if there were any and as it is the water in these lakes is probably seepage from the main lake above.

The first of these lakes contained only about 40 acres and had practically no open water in it the entire surface being covered with Scirpus occidentalis with a band of Scirpus paludosus around the edge. Open areas of mud had a saline efflorescence forming on the surface.

No ducks were seen here but I listed the following.

Yellow Head	20 males
Redwing	5 "
Killdeer	1 pair
Bittern (Botaurus)	1 individual.

This lake was very boggy.

Prairie Dogs were abundant all through here and I soon when they had dug out small growth of Scirpus paludosus and had eaten off the tender end above the bulb. Specimens of this work were collected.

Eleocharis was getting a good

start here in wet meadows.

The lower lake was about a fourth of a mile long and perhaps half as broad. At one end was a considerable growth of Scirpus occidentalis with some S. paludosus and considerable Typha latifolia that is just getting a start. Elsewhere the water was open save where there were scattered clumps of S. occidentalis.

Like the upper lake this one was alkaline and had efflorescence forming on low moist shores.

The following birds that were apparently breeding noted here.

Mallard	5 pairs
Redhead	4 "
Ruddy	4 "
Greenwinged Teal	1 "
Coot	14 individuals
Yellowhead	20 male
Redwing	1 "
Night Heron	15 pairs.

Besides these I saw the following lone drakes here. C

Cinnamon Teal	8
Greenwinged "	2
Bluewinged "	1
Mallard "	8

This lake was apparently only a foot or two deep but was very boggy. Along one side was considerable dead growth of Hordeum jubatum.

After finishing a survey of these lakes I walked up the second gulch below the lake for a short distance. There was a grove of yellow pine here and above a small grove of Pseudotsuga macrocarpa. I have been a little uncertain of this but collected the characteristic cones with the essential bipartite bracts.

There were long slopes here covered with oak chaparral, currant and the other shrubs that I have been collecting. Small birds were fairly common and I collected two or three.

Between the main lake and the lower lakes is a broad area perhaps covered with water in spring that has a solid stand of Sieglingia sesquiplata coming up. There must be 60 or 80 acres of it in all, and it is the largest area of this plant that I have ever seen. Practically nothing else grows with it.

On my return I found that Mr Chester Faris and Mr. Moore, Superintendent and assistant superintendent of the reservation respectively had been there and had just left.

This evening Mr. Gardner from Largo Canyon camped on the road opposite us and I made arrangements to go into town with him in the morning.

A storm was threatening tonight and Canada geese were calling all around the lake, nearly the whole night through

making a tremendous amount of noise. They continued until dawn.

June 12, Wednesday.

Was up this morning at five and a shoot was on my way to El Vado. Reached there shortly before ten - Found considerable mail there for me. Bought a few supplies had dinner and came on back. The Chama River with its green cottonwoods and irrigated lands looked very pretty.

Between the reservation line and the camp I saw about 200 prairie dogs. Young Began to come out about three days ago and I saw many today.

Saw one small Rattlesnake first I have noted.

Reached camp again about five in the afternoon. Very hot all day. Straightened things up at camp wrote an official letter and then tried to get a Mallard or two but without success.

June 13, Thursday.

Was up this morning at six and was on the lake at seven. Rowed down to the islands in the south lake. Spent some time in watching from blinds and then crossed on to the second island in hopes of getting some Mallards but was unsuccessful - took a number of views to show typical growth of Scirpus occidentalis

Scirpus paludosus is now coming into bloom.

The south shore of the second island is shallow and is quite a feeding ground for ducks. The water was very muddy when today when they had been working and a few Drake Mallards were standing on the shore.

There are certainly ducks nest all about here but with the abundant cover that they have I am unable to find them. The previous statement should be qualified: the cover is not abundant but what there is consists mainly of ~~growths~~ dead broken growths of Scirpus occidentalis that is closely matted. There are many hollows under this and nests concealed in them are certainly well concealed.

I landed on the third island today but discovered nothing new.

Many dead Amblystoma are floating about on the water surface now. They float and swell until they burst. This morning I picked up three still alive but barely able to move. I do not know what kills them unless it is the release of H_2S in the water. There is an abundance of this in the water. I saw three or four today suspended in the water a foot or so below the surface. They are very agile and when they saw me turned head down and with a quick wriggle of the tail disappeared. I saw them breaking

at the surface again apparently after Chironomids.

Stinking Lake is beginning to merit its name. For the past two mornings at daybreak a distinct odor has been arising from it in the cool morning air. Jimmy has been making remarks about a dead ship around somewhere. I notice this odor on the water in some places, a stagnant rotting smell of dead water, wet decaying vegetation and decayed lily pads floating on the surface.

The pondweed is growing up to the surface everywhere and buds are appearing at the tips. With it are masses of green algae that adhere to the water plants in masses of scum. In fact bays and areas are already entirely covered with this.

Shot a female Mallard that has moulted entirely into the dark plumage. She was alone and I believe I found her nest.

Afternoon I got my notes in shape. Skinned my Mallard to take other ducks she was very poor.

Then went up to the Spring & collected Damselflies, Odonids etc. Found a Coral Hairstreak taking a walk in the lake today. One red dragonfly very swift in the wing and was unable to get any. After

a bit the sun went under and a few sprinkles of rain fell. Immediately all insects disappeared.

I made a dissection and drawing of the sexual organs of the Mallard shot this noon after 5 hours.

Yesterday morning I located a nest of the Brewers Sparrow containing new hatched young as I was about to leave for El Vado. Tonight at 5:30 I attempted to find the nest again but wind and rain had destroyed my landmarks and I was unsuccessful though I did locate a nest containing 3 eggs.

Intended to go out this evening for Mallards but a tremendous gale with driven rain came on, stringing in lines across the lake from the north and held me in. It was still raining when I went to bed.

June 14, Friday.

Was up this morning at six and found it clear cool and pleasant. Had breakfast and was cleaning out the boat at 6:30 and was on the lake at a quarter of seven.

I rowed directly down to the second island and put up a blind on a point where Mallards have been using. But the birds were wary and would not come near. I finally secured two in another place but put in almost the entire time until noon in hunting them.

There is practically no change

in the duck population here since my last census. Saw that the number of single drakes among Mallards, Cinnamon Teal and Redheads is steadily increasing. Ducks here hide their nests with such success that I am unable to find them. Have not flushed a female from a nest yet.

Ambystoma frequently rests on masses of algae six or eight inches under the surface enjoying the sun. They come to the surface for insects and flirt their tails out as they turn to descend. The number of dead floating on the water surface steadily increases and the night herons no longer keep them cleaned up.

The water of the lake has a steadily increasing odor about and the masses of algae in the water are steadily increasing.

After dinner I rowed nearly across the lake in an attempt to secure a Franklin's gull but failed. It was exceedingly hot in the water and my gunbarrel became too hot to hold.

Returning I skinned two Mallards secured this morning. Both were thin and hard to skin so that I was 30 or 40 minutes in preparing each one.

As it still remained hot and comparatively still I armed myself with mask net and beating cloth and went over

on the East Bay when I collected insects until five or after - Secured some very good robberflies and in addition captured some Psyllids & plant lice.

Returning saw a flock of Pinon Jays containing young still under the care of their parents. Hurried back to the cabin for my gun and returning collected one bird very glad to secure a specimen in juvenal plumage.

After supper I put on my boots and did some wading for blackbirds nest in the rushes in front of the cabin. Wading here is hard work as it is difficult to plow through the matted last years growth. In addition the bottom is soft and boggy so that I carry a pole with me for use in case I get into a hole. I collected two newly hatched Yellowlegs and located a Redwings nest containing 4 eggs.

Returning I wrote up my notes for the day.

June 15 Saturday.

This morning dawned clear fair and cool as usual. I was up at six had breakfast and then worked until 7:30 straightening out some notes, taking care of insects collected yesterday etc.

Then took the boat and worked around the north end of the lake in

are endeavor to secure some more Mallards. There was a flock of ~~ / ~~ ranking gulls in the lake in adult plumage but they were wary and I could not get near them. Finally shot an immature bird.

I found many ducks gathered in small indentations and on little points around here, among others three pairs of Canvasbacks. The ducks here seem to have a sort of floating population among them that are not yet ready to breed but still are located here. When I found a day or two in the south lake these all shift to the north shore and vice versa. Even birds that are laying do this more or less as the lake is small. From my last survey I am satisfied that the data I obtained is approximately correct with the addition of three or four more pairs of Blue winged Teal. More of these birds and a few more Mergansers have come in lately.

Mallards are now all laying and the same is true of Gadwall, Redheads ~~Coots~~ Common and Green winged Teal. Many of the other ducks however are still delaying. I am satisfied however that they do intend to nest here.

I worked around the entire north shore without being able to get a shot through. I saw many Mallards.

Hundreds and Hundreds of a small Scarabaeid (Cyclocephala ?) were floating around in the lake and Coots and Franklins Gulls were picking them up. I gathered a small series for specimens. In addition the Swath surface was dotted with what seemed to drops of dirty oil. Closer examination however showed that this were masses of Chironomid eggs floating about. They were arranged in a single layer closely attached to one another and forming a more or less circular plate from 1/2 to 3/8 of an inch in diameter. In one place a large number had blown in near shore in a sheltered place and I was able to photograph it as they covered the water surface almost in a solid mass for areas varying from 3 or 4 to fifteen feet square.

About ten I crossed to the Ridge and working around into the Round Lake managed to secure three more Mallards. Then rowed into the East Bay took a couple of pictures and returned to the cabin.

Found E. W. Pineau there. He remained for dinner and we discussed various topics until about three.

I believe now that the lake is between 12 & 15 miles in circumference and does slightly more than 4 perhaps

4½ square miles of water surface.

After Brewer left I worked in preparing my birds until six. Mallards were very hard to skin as usual.

Wrote up my notes this evening and then walked out through the sagebrush at dusk watching for bats and Nighthawks. Shot a good cottontail to be prepared for a skeleton. It was very small and gray with a brownish gray saddle on the back. an adult female.

An outfit above in so I went back. Found a mexican and two youngsters much surprised to find the cabin occupied. They remained for the night.

June 16, Sunday.

Clear and cool this morning as usual. Was up at six and my guests pulled out about seven. I left the cabin at once climbing the east gulch again and not returning until 1 P.M. Collected several birds (and should have had more but have opened a new box of auxiliary shells and ~~finished~~ find them defective. A few shot all right but others do not. Fired five at one Warbler at 12 yards and they only wing-tipped it.

It was clear all ~~day~~ forenoon but the wind blew somewhat making observation difficult. The season is farther advanced than last and birds are more quiet. Vegetation is in full leaf now and

Summer is at its heights. Choke cherries have formed and I had a few Gooseberries to eat.

This gulch is a beautiful place and I regret that I have not more time to enjoy it. The great yellow pines gracing the hillsides and the groves of oak and Quaking aspen open enough to give a view are very pleasing.

Mosquitoes were quite bad today. Also saw many flickers.

I saw two Rock squirrels and shot one but lost it.

Found a Mountain Chickadees nest and collected two fledglings. Also took a Canyon Wrens nest.

Climbed actively all morning up and down and was ready to rest when I came in at noon.

After dinner I cleaned up my specimens putting up Virginias Warbler, adult Mountain Chickadee etc in formaldehyde. Finished about four and then went over to a pool below the spring and took a good bath.

After cleaning up put half or three quarters of an hour with the insect net. Had good luck with the dragonflies this time and collected a number including one species not seen before.

Returned to the cabin and worked on notes until supper time.

About seven walked up to the upper

spring for a pail of water. It was fine here in the cool evening air and the narrow-leafed Cottonwoods with their tops in the Sun and bases in shadow were beautiful.

Returning I secured my gun and sat around under the cottonwoods until dark. About nine an enormous Great Horned Owl flew in and alighted above my head and after watching it a few minutes I shot it.

Also shot Ptilogonys fuscus on the way home and saw several Myiodis californicus

Mosquitoes were quite bad up here.

June 17, Monday.

Clear and fine all day today with the sun exceedingly hot. Went around into the East Bay in the boat and then rowed to the end of the bay, landed and walked down to the valley in order to take some pictures. Spent most of the forenoon in securing pictures of plants and other things.

I found gray willows in bloom and secured specimens of it. A yellow-flowered Opuntia, was in blossom also and I got some very good insects from it. It was a very handsome plant.

I rowed around to shoot a female Hylocichla that from her actions might have had a nest. A pair have been seen frequenting the edge of the bushes in one spot for two weeks and I thought

possibly they might be breeding but was unable to find the nest. This morning the female swam out alone and I killed her. Later examination showed that she had not laid and the ovaries & oviduct were not functioning as they should at this season. That is other words the bird was sterile.

After dinner I skinned what birds were in hand and then did some photographing of water plants. Also took a water sample from open water in front of the clubhouse for analysis. Did some writing and then it was supper time.

After supper I attended to insect specimens. Did a little packing for shipment and about eight walked up to the upper spring. Mosquitoes were very bad. Watched for Myotis but they did not appear until late and a heavy cloud obscured the west so that I did not succeed in killing any.

Night hawks have come in in considerable numbers in the last day or two and were booming constantly.

June 18, Tuesday.

This morning the sky and air were clear as crystal. As the sun came over the hill I was standing on a slight rise back of the cabin and had a beautiful view. The lake below me

~~clear as~~ ~~glass~~ smooth as glass save
when skimming coots or grebes
made V shaped ripple marks on its
surface. The hills and sage grown
knolls across were clear and distinct
and occasional small broad leaved
cottonwoods caught the sun along
the shore. To the south the
Chupaderos with their irregular
points streaked with light bands
of sandstone stood out plainly
and below was the long level
ridge of the Jemez Mountains.

After breakfast I did some writing
and then went down into the South
Bay in the boat in order to secure
some photographs. Found a second female
Bluebill ~~that~~ seemed to be brooding
and shot her, afterward making a
search for the nest without success.
Wading in these bushes is very hard
work as it is necessary to raise
each foot to the level of the dead stuff
above the surface and ~~—~~ stepping
I sank in over my knees in mud and
water.

On dissecting the female marila
affinis later I found no sign whatever
that she was ~~a~~ breeding bird.

Went on down to the second island
and took a number of pictures of
plants. Atriplex and others grow there
in abundance that have [illegible]

eaten out on the main canal by Thup.

Aquatic growth continues to multiply in the water and I have no doubt but that the entire lake surface will soon be covered. Conditions among the water birds have not changed for the past ten days. Paired birds are less in evidence as they are now standing or juding ~~[illegible]~~ in the rushes and not ranging in the open water. Small parties of drakes spend the day resting on small sand spit and other open bars.

Today I found a Mallards egg shell on island number two that I judged had been destroyed by packrats. The shell was lying in a little patch of chrysothamnus and had small bits of dirt and sandstone piled around and over it partly concealing it. There was a very large packrats nest near by.

The packrat seems not to have become accustomed to bees as yet as it considers forcing a ferocious attack and biting in quantities to mix with the sticks of its nest.

While I was eating dinner a party came down from Chaco

visit the Lake. Among them J. Renault State game Warden, Mr. Hughes Warden of the Penitentiary, Mr. R. W. Hall, Mr. C. McFadden & Mr. Coyell & Obama. They remained until Sunday.

I then gave to specimens secured in the afternoon and worked until dark packing up specimens for shipment to the office.

A shower of rain this evening.

June 19 Wednesday.

Finished packing my tent & outfit this morning and then went out and took some pictures of the Cottonwoods. The auto truck arrived at a quarter to 9 and at 10:30 was loaded and on our way. I had my last look at the Lake and then we were down the canyon. The morning was cool and pleasant the air clear and I enjoyed the ride. We passed through El Vado a longer route but one having a better road. Reached Chama about 2:00 P. M.

I attended to shipping some specimens and got my mail including some that had been forwarded from El Vado.

Talked with Mr. McFadden and also with Mr. Irwin whom I met in El Vado. Saw E. W. Pinkan and his outfit north of El Vado today.

Breeding Birds at Lake Burford - First Census.

May 24-30.

Colymbus n. californicus	[illegible]	285+55 individuals
Podilymbus p. podiceps	[illegible]	21 "
Anas platyrhynchos	[illegible]	32 pairs
Chaulelasmus streperus	[illegible]	53 "
Mareca americana	1	1 "
Nettion carolinense	1-5-2	8 "
Querquedula discors	1	1 "
" cyanoptera	2-1-1-1-5-2	12 "
Spatula clypeata	1-1-[illegible]	7 "
Marila americana	2-2-2-6-4-4	20 "
" Valisineria	1-1-2	4 "
Erismatura jamaicensis	[illegible]	54 "
Nycticorax n. naevius		
Rallus virginianus	1	2 individuals
Fulica americana	42-26-36-[illegible]-72	212+86 "
Oxyechus v. vociferus	1	1 pair
Xanthocephalus xanthocephalus	7-20-18-[illegible]-21	174 males
Agelaius [illegible]	1-2-2-6	11 "
Melospiza m.	7-4-5-6-8-7	37 individuals
Geothlypis t.	3-3-2-1-3	12 males

Marila affinis [illegible] 12 pairs, 2 extra ♂♂.

✓ 55 counted that did not seem to be paired

✓ 86 counted that " " " " " "

This census does not include Clear Lake or the two lower lakes.

Breeding Birds at Lake Burford Second Census

June 1 - 11.

Colymbus n. californicus	[illegible]	711 individuals
Podilymbus p. podiceps	[illegible]	25 "
Anas platyrhynchos	[illegible]	42 pairs
Chaulelasmus streperus	[illegible]	80 "
Mareca americana	1 /	2 "
Nettion carolinense	1 - 1 /	5 "
Querquedula discors	1	1 "
" cyanoptera	[illegible]	8 "
Spatula clypeata	[illegible]	22 "
Marila americana	4 1 13-1, /	31 "
" Valisineria	1-3	4 "
Erismatura jamaicensis	[illegible]	53 "
3 Oxyura antigipsons 1.		1 individual
Nycticorax n. naevius	15	15 pairs
Ardea virginiana		
Fulica americana	14-24-90-77-50-14	269 individuals
Oxyechus v. vociferus	1	1 pair
Xanthocephalus xanthocephalus	7-15-56-24-41-25-20-20	208 males
Agelaius p.	[illegible]	17 "
Molothrus m.	[illegible]	49 individuals
Quiscalus q.	[illegible]	4 "

Marila affinis. [illegible]

This census includes Clear Lake, Lower Lakes & islands in Lake Burford not covered in first count.

Breeding Birds at Lake Burford, Final estimate.

Columbus n. columbianus	355	pairs	
Podilymbus p. podiceps	15	"	
Anas platyrhynchos	40	"	
Chaulelasmus streperus	60	"	
Marica americana	2	"	
Nettion Carolinense	5	"	
Querquedula discors	4	"	
" cyanoptera	12	"	
Spatula clypeata	15	"	
Mareca americana	30	"	
" Valisineria	4	"	(?)
Erismatura jamaicensis	55	"	
Botaurus lentiginosus	1	"	(?)
Nycticorax n. naevius	15	"	
Rallus virginianus	1	"	(?)
Fulica americana	150	"	
Oxyechus v. vociferus	2	"	
Xanthocephalus xanthocephalus	210	"	
Agelaius phoeniceus	20	"	
Melospiza melodia montana	35	"	
Geothlypis t. occidentalis	15	"	
	1046	"	

Grebes	370	"
River ducks	138	"
Bay water "	89	"
" Land Birds	280	"
Total Ducks	277	"

On the evening I met Mr. Thompson who had the ranch below the lake 25 years ago. He told that then the lake was high and that he attempted to use the water for irrigation but that a series of dry years set in and he never succeeded in getting water to his ranch. He said that in excavating a ditch below the lake that he struck a bed of sand through which the water of the lake was seeping to the small lakes below. Apparently the lake is fed merely by spring snow water, rain and seepage and has no regular unfailing spring as the water level varies greatly from year to year.

Mr. Thompson told that the Mexican name for the lake was La Laguna Grande de Ojo Llendo (stinking). Or in other words the lake of the stinking spring. In one canyon west of the lake is a sulphur spring and from this the lake has taken its name and not from any quality of the lake itself.

Spent the evening talking with Mr. H. L. Hall, Mr. Hughes and Mr. [illegible]

On the second island yesterday I found a fine growth of Dodecatheis

spicata, And much Hordeum jubatum
Also noted a few plants of Rumex fron-
talis.

June 20, Thursday.

Was up at six thirty this morning
had breakfast and then took a short
walk to the edge of town. A fine clear
cool bracing morning.

Did not sleep well last night as
my bed was too soft and springy.
Went over town and got in touch
with Mr. McFadden, Mr Hall and
others.

About ten thirty walked up the
Chama river for a short distance
remaining out until twelve.
The river here is the usual swift
Mountain stream running over a
gravel bed. It is 40 to 60 feet wide.
The bank have a dense growth
of Populus angustifolia and a few
Salix. Struck by the great
abundance of Robins here.

Returned had dinner and then
packed my suit case.

Left via D & R.G. for Antonito at
2:55.

The ride up through Cumbres
Pass was even prettier than coming
down. Ducks are said to nest there
in lakes at the head of Elk creek and
Elsewhere. Saw some snow still in
the pass but Populus aurea

Was in full leaf now. I saw some very extensive growths of this tree. Douglas Fir was common and Blue Spruce abundant in the pass.

Reached Antonito at 6:50 P.M. Registered at the Palace Hotel. Went to the office and letter & brought my notes up to date.

June 21, Friday.

Was up this morning at 6:15 shaved and dressed and then walked out to the edge of town for a short time. Last night my room was hot and stuffy but early this morning I found the air cool and pleasant. Saw Yellow Warblers and Robins and the town was full of English Sparrows.

Left Antonito via D & R G. R.R. at 7:00 A.M. and travelled south to Santa Fe. The day was cool as the sky was overcast. The ride was pleasant but saw nothing startling. Was interested in seeing the headwaters of the Rio Grande and had a fine view of a bold range of mountains to the east near Lobo Junction.

Reached Santa Fe at 4:40 P.M. and transferred ~~to town~~ to the A.T.&S.F. station only a short distance away. Then walked over town. Though it was late hours I was permitted to see both the old and the new museum. In the former were some fine paintings well displayed by men who found

the artist's colonies at Taos and at Santa Fe. In the A.I. museum was a fine collection of indian material and numbers of which bones among the implements and was able to identify skull and tibia tarsi of turkeys and golden eagle.

Saw many nighthawks very pale flying at dusk. The storks were fine. Then must be herons.

Left Santa Fe at 9:50 via A.T. & S.F.
Arrived Lamy 10:45
Left Lamy 11:55 P.M.

June 22, Saturday

Reached Albuquerque this morning at 2:30 a.m. and registered at the Alvarez Hotel. Slept until 7:15. Got mail this morning at the post-office and then spent the morning in making purchases of necessary supplies, getting repairs to shoes etc and getting my outfit in shape.

After dinner I worked up my expense account for June in order to see where I stood in authorization.

Was not able to get in touch with our office here until evening as all the men were out of town. Found S. E. Piper here and we spent the evening together in talking. Also met W. Stonier.

Piper says that in prairie dog work he has recently had men working in areas frequented by Scaled Quail. On one case the grain and was very

dirty containing many weed seeds and in the area where this was spread Piper said reports of dead [illegible] had been received. He did not see the birds personally and his assistants failed to show the crops to see what they had eaten. Piper attributed the deaths to the poisoned weed seed rather than to the grain. The number of birds lost was [illegible] small when the area treated was considered.

Piper said that from July 15-20 he was going to have a Boy Camp at Black Lake in Hays County at an altitude of about 8000 feet. The Lake is rocky bottomed and there are areas of about 250 acres. I am going to ask for permission to visit this place as it can be done at a very modest expense.

Rather warm today with one or two showers. House finches and English sparrows were the only birds observed, (with the addition of Robin and Yellow Warbler noted in a park.)

This afternoon I met Mr. Hammon on the street and talked with him for a time. Also called on Mr. M. E. Hicky a prominent Lawyer.

June 23, Sunday.

Was up this morning at six. At eight Mr. D. Stone of our force met me at the survey office and took me out down to Rio Grande Valley about 8 or 9 miles to the Granite

of Pajarito, N.M. The river here about two yards wide was running rapidly and was very muddy. The water was almost red. The stream bed is broad and there is a fertile green irrigated area on either side. Along the stream were extensive groves of Populus wislizeni and Salix of gray and black willow. Orchards of cherry and peach and cultivated fields extending for a broad area on either hand with the dull yellow sandhills as a background. There is a high water table & either hand and pools of standing water were common. Typha latifolia was abundant about all of these.

There were many more spiders.

Birds were fairly common but were in small variety. A summer tanager and a Blue Grosbeak in one weed stalk made a pleasing contrast. Wood Pewees were common as were yellow Warbler. I collected a few insects but did not secure many.

We returned to town at noon. Did some writing after dinner and then with Piper went down to work at some wolf traps that are being kept by Mr. Ligon.

Mr. Ligon came in at night and Piper & I met him at the train. Ate supper together and

this talked for awhile in the evening. Went to bed about eleven.

June 24, Monday.

Learned from Mr. Ligon this morning that he would be unable to accompany me to the Chuska mountains because Mr. Bell was expected on the 28th and he had a great press of work. Purchased a few supplies, packed up at once and left for Gallup at twelve. Very hot and dusty travelling. Reached Gallup at 4:20. Registered at the Commercial Hotel.

Called on Mr. J. M. Smalling of the McKinley County Bank. We discussed game matters and he gave me information regarding the country. He introduced me to Mr. Carey and to Mr. Cotton who gave me additional information. Mr. Carey called up Fort Wingate and learned that Mr. Peter Paquette, Superintendent of the Navajo reservation was on his way to Gallup, a fortunate circumstance.

Met Mr. Paquette in the evening. He suggested that it might be well to talk with Mr. Arnold, trader at Lohatchi who would be in in the morning.

Quite warm here.

June 25, Tuesday.

My room was hot and close during the early night and I did not get

to sleep until late. Was up at seven this morning.

Talked further with Mr. Paquette and with the superintendant of schools at Ishatchie, but could not get any definite from them.

Finally went over to see Quinn at the livery stable. He told me that he would outfit me with pack if I wanted it but that he was certain that I could get in to where I desired to go with a light spring wagon, much easier and cheaper. He sent the foreman in hunting a driver and at noon we struck a bargain at ten dollars a day for the outfit with me to pay subsistence. Price is too high but it is the best I can do here now. Could get hold of no one else.

This afternoon bought grub and got the outfit together preparatory to beginning in the morning. Have been busy all day.

Bought 8 rolls of Kodak film today as supply ordered did not come. Also requested increase of $20 in authorization.

June 26, Wednesday.

Packed my suitcase early. Was up at six. Had breakfast and then got after my outfit. Got everything together and left town at 8:15 a.m. Have a light wagon, team, driver and camp outfit for which I pay

the modest sum of $10 per day. Outfit was to include saddles but these were left out. Drove northwest from Gallup through a rough broken country grown with cedar. Then was a steady upgrade until when we camped at noon at the place known as the Divide we were at 7000 feet. Groves of Pinyons here. Passed a short distance south of Rock Spring, nine miles from Gallup. We camped for an hour at noon and I captured a few ants and one butterfly. Sky was overcast and some rain falling so that everything else had taken to cover. Then was a small store below. Collecting locality marked Divide, 20 miles N.W. Gallup. From this point we went down to narrow canyon past a mine said to belong to ~~the~~ government and so on down grade to a curious rock formation known as the haystacks where a number of points of sandstone had been cracked out ~~so~~ that they stood in a conical form. In one place was an opening through one rock known as "the window". This is nearly on the Arizona line.

From here we drove toward Fort Defiance passing a peculiar formation known as Black Mountain. Many Sarcobatus along here but little else. Passing half a mile from Fort Defiance on the east we continued north on a slight upgrade toward a rounded butte known as Brigadier Peak

The road here followed Black Creek an arroyo at present containing water as yesterday there had been a heavy rain. Small ranches and Navajo hogans were scattered along here. This entire area is in the Navajo reservation. The soil was better watered here and there was short grass. Small patches of corn were only 6 or 8 inches high.

We passed slightly beyond Baijiachi Peak and and camped about P.M. 3.0 at Red Lake for the night.

Several slight showers during the afternoon but coming clear. Ashstung the my horses so they are old but seem willing to pull. Made 47 miles from Gallup today.

Camped just above the shore of Red Lake around a point from the road.

June 27, Thursday.

Bright moonlight last night. I slept very well though was awake at frequent intervals. Heard me coyote barking and a female Mallard and a male green-winged Teal. Many toads were calling from the Lake and I heard a few Rana pipiens. The night was sharp and cold.

We do awake at 20 minutes of six and got up at six.

The Lake here at present has about 300 acres of water. The shore line is bare and very soft and muddy and the

water is filled with sediment. We were able to use it only in coffee and it was not very good in that.

I saw a few plants of Polygonum of the same species as collected at Stinking Lake and in the water out from shore were a few clumps of Scirpus of the Paludosus type. I was unable to get out to these to collect specimens because of the boggy bottom.

The lake lies in a small basin slightly a short distance north of the foot of Baigachi Peak and with a huge broken cliff of red sandstone above and back of this coastal shore to the west is a low ridge grown with pinyons and to the south a low divide across the valley. After breakfast I walked around the south end of the lake and found a small wash draining into it here. Some water was running into the lake from the last rain. This wash drains from a canyon north of Baigachi peak. The open flat here was barren and sandy with greasewoods growing above it.

The lake apparently when full has about double its present water area. At present I do not think it more than two or three feet deep. At the south end is a low dam and water is drawn from the lake when it is high for use in irrigation.

The Scirpus and the Polygonum

would furnish the only suitable food available for ducks at present as sheep are run here and have the shores entirely bare of vegetation. Apparently there are crayfish in the lake. I found no drying pool in which were a number camped on the timbered road and made a quick get away.

Following birds seen

Redwinged Blackbird. 1 male
Mallard 1 pair
Green-winged Teal 1 "

Conditions were absolutely unfavorable for waterfowl.

The lake was beautiful at dusk last night with the black bulk of Baiguichi covered with pines looming above it and the evening light shining on the dull brick reds of the sandstone cliffs.

Yesterday I examined a small pan known as Sampsons Lake near Gallup but found no sign of ducks.

Another small lake of 60-100 acres below the divide also had nothing on it.

Broke camp at 9:25 A. M. and drove north toward Crystal, a post office and store. We took the railway road headed a short distance above Red Lake and went north on the road to Larkachukis until we were a short distance below the Tsosaba Buttes south of Washington Pass. Camped for noon at an alkaline tank coming from the

East Butte, and Camp was at a point 2 miles from the West Butte and just above Black Lake. I took the place to be just within New Mexico. I collected a number of insects here.

Turned back here and made a half circle came up over a pinon covered knoll to Crystal.

Black Lake was entirely dry & saw no Killdeer at the Lake below Sonsela Buttes. The land here was better watered than below and fed abound.

Crystal store and post-office was reached at 4:30. Was told here that there was a possibility of going ten miles north to the summit of Cottonwood Pass and then turning south on the high mesa and coming straight down across sheep spring trail and into the Lukachukai region at Chuska Pass.

Decided to camp here overnight on the chance of getting a mail. Mail is due here today also from Gallup and may have letters.

Crystal is about a mile and a half inside the New Mexico line and about east of Sonsela Buttes. It lies in a small open valley at an altitude of 8000 feet. Yellow Pines appeared here. It is a very pretty place with the last line of the Chuska range a thousand feet high on the East.

Mr. J. Cowan is Storekeeper here and depot

an hour or two this evening talking with him. The mail came at 9 nine o'clock but it had nothing. Mail is forwarded from Crystal every Thursday morning and comes in that same evening. Went to bed about 9:25. Clear and fair all day.

June 28, Friday.

Cold and sharp last night and did slept none too warm. Mr. Cowan claims that the altitude of Crystal is 8000 but I don't believe it myself that is about 7200 and have so located it on my map. Indians raise oats and potatoes there and yellow pine makes its first appearance above the flats.

Wrote to the Postmaster at Fort Defiance where the mail for Crystal is made up and asked him to return any mail for me to Gallup.

The water here at Crystal is plentiful and is very good. It seemed excellent after the bitter I have been drinking for the past two days.

Was up this morning at six, but was awakened before daylight by the calling of violet green swallows that were flying around before it was light. Then the Say's Phoebe came in and began to call above my head. When I got out the air was sharp making my fingers tingle.

Left Crystal at 8:00 A. M. with a

Navajo named Jim Jones for quick and drove I to the summit of Cottonwood pass. The road was fairly good and I follow'd a small stream of water. We crossed several pine springs within a mile or two or Crystal and 3 thus higher. The lower part of the Canyon was very pretty. There were some fine flowers I rather one of the trees measuring from twenty-five to thirty five feet tall and 2 feet or so in diameter. Quaking Aspens appeared at about 7600 feet and were common above this and it must be these that give the pass its name as there are no Cottonwoods here.

Birds were only fairly common. The stream is said to support no trout.

Reaching the summit of the pass we left the road under the guidance of Jim Jones and turned up a steep slope leading into the shoulder of the Mountain. The grade was very steep but the team did well and we made the top without accident. The road wound in and out among the pines and aspens. I saw Douglas Fir and Blue Spruce in the canyon below. Reaching the summit we came out on a long rolling mesa that stretched out to the South. A trail led down along this but apparently none has been the only wagon in here. We crossed the trail to Sheep spring and passed

Long lake. Camp at a soak & a spring just beyond it. This spring was merely a seep hole but we secured potable water by sinking a hole in the black earth of an ash.

After a late dinner I set out & about two & half miles long lake and the vicinity. This lake is at present slightly less than three quarters of a mile long and not more than 50 & 125 yards wide. There was a small pool of fair water at one end and the rest was grown with a grass that grew in hummocks in the water. Cattle horses were wading about in the water nearly to their bodies and eating this grass. The margins were bare sand & mud and the whole lake was trampled by stock.

I saw 9 Mallards here, 6 males and 3 females. Two females seemed to be mated. Then ducks rose, circled and made off to another lake at the left through the trees. Later I saw another pair of Mallards and three drakes on the opposite side. Also two pair and two male Blue-winged Teal and a ♂ Cinnamon Teal. The birds were very tame.

Travelled on east and crossed another long basin now entirely dry. A dead growth of the small Elvedians that filled the large lake found here.

This mesa here lies at about 5,870 ft. Crossed to a small Knoll about 200 ft high and found that it was on the brink of a steep slope leading down to a second bench or mesa below. From it I could see a tremendous distance out across the dry yellow tinted arid country below. To the north 35 miles at least was the tall pinnacle of Chip Rock here not seen but it is that because the mirrors distortion was present to me.

Leaving here I crossed several small hollows that had contained water but now were dry. I found two small hollows that contained circular pools of water 50 ft across. One of these was immediately above camp.

Returned to camp about six, pressed some plants and worked my notes.

Cloudy windy this afternoon but clear and fair all day. Clouds are beginning to gather around the horizon and it may rain in a day or two.

June 29, Saturday.

Heavy winds blew at intervals last night but I slept very well. It was not as cold as it was at Crystal night before last. Was up this morning at six and the sun came above the Knolls on the east a few minutes later. It was clear and the air was cool and sharp. Rearranged some things in my outfit and packed mules secured yesterday. Left camp at seven

forty and travelled out across the mesa to the south.

There is an open forest of yellow Pine all down through here with occasional trees of Douglas fir and very rarely a bush of Pinyon. The underlying rock of the mesa is a fine light colored sandstone, that when exposed splits readily into thin plates from a half inch to two inches thick. This sandstone ~~as that~~ has a dip of 30° to the northwest, with the strata are tilted somewhat to the east. ~~Apparently~~

This sandstone forms low ridges running in a general way east and west across the mesa with many small hollows on its surface. In wet seasons every hollow has a lake in it large or small as the case may be. The present season is a dry one and the pans are in the ~~pan~~ main dry. Apparently only those fed by springs or that have seepage coming in from a considerable area contain water at the present time.

Quaking aspens and a few large oaks are found in small draws above the larger hollows. Some of the aspens standing alone are of large size growing to a height of 40 feet and having a diameter of two feet. The yellow pines here are magnificent.

I crossed two open stretches of large

size this morning that have crossed lakes of some size when filled.

One Lake bed that I crossed was ½ mile long by ⅜ mile broad. The bed was entirely dry. A band of grass surrounded the old shore line. within this came a large area of dead Eleocharis with the center was bare black mud.

Along some of the ridges I saw numbers of newly dead yellow Pines. It may be that the excessive dryness is affecting them.

found an elongate lake with irregular outline that contained some water but no ducks. Another in a broad opening had about two hundred acres of water in it. This was grown with the tall grass but had been well cropped by cattle.

On the third large grassy between five and six miles below camp I found Black Lake which has the appearance of being a permanent body of water and is probably the largest lake in here. At present it was a mile long by half a mile broad. The north end was grass grown but the southern end apparently was deep and had considerable areas of open water. Around these were grouped this of a round stemmed Scirpus. Sixty horses were feeding on the tall grass in this lake, standing about in water up to their knees or farther. I walked entirely around this lake and in

found the following
Coot 50 individuals
Eared grebe 10 "
Mallard two males.

It is probable that 25 % more of these birds escaped notice in the moss or less dense growth of rushes. Strangely enough the Eared Grebes all seemed to have young and I saw some that were at least ten days old.

With so much stock about there is little chance for ducks to feed.

From here I swung back and circled toward camp. I crossed three small lakes containing a small amount of water but saw no ducks. On one I collected specimens of a Batrachium and at another some Polygonum.

Besides these I saw fifteen or twenty dry lake beds ranging in length from ten yards to half a mile or more.

Travelled about fifteen miles and saw two bands of sheep, 125 ponies and 40 head of cattle.

Returned to camp about a quarter of one.

In the afternoon I cared for a few birds and wrote up my notes. The wind blew a gale from the northwest make work slow and difficult. It

clouded up later and threatened rain. so that I had to stop and get things in shape in case a shower did come.

In the late afternoon I walked down to Long Lake and there saw two pairs of coots that I had overlooked previously. The other ducks seen there yesterday were present also.

In the evening I went over to a point south of camp and set out a few mouse traps. It was cold and windy with the sky overcast in the west and I was glad to go to bed at nine.

June 30, Sunday.

Very cold last night and windy. Slept very comfortably however. Was up this morning at six; and found the sky lightly overcast in the east so that it was nearly seven before the sun broke through. Walked down and took in my traps. Had one adult (Peromyscus maniculatus nubiterrae) and one immature Peromyscus, the young was badly eaten by ants in spite of the fact that it was cold this morning. About a quarter of eight I travelled out west of camp and then on south. There were not so many large lake Birds here as in the east but I found several small pans filled with water that lay entirely in the woods. No ducks or waterbirds were seen on them. This morning early two mallards flew over camp to the south.

The country traversed today was

more broken and was covered with a forest of Yellow Pine. The whole region drained into a canyon on the west that must come out near Crystal. This canyon carries drainage for a large area and though it contained no running water still the soil was more moist and the growth of herbaceous vegetation correspondingly greater. Groves of Quaking aspen were abundant. An area of from large plants from 4 to 8 feet tall with a long drooping spike and broad smooth mallow like leaves. When bruised the flowers gave off a musky odor.

Pseudotsuga mucronata was common here and I saw some blue spruce. The ground in places was covered with Kinnikinnick. and I saw some Berberis. This area was true Canadian Zone.

I shot an Adult male Pine Squirrel (Sciurus mogollonensis) and collected fleas from it. This region has so much stock in it that I think many of the smaller mammals have been driven out. This is the first Pine squirrel seen here. I saw a few signs of Thomomys and last night I heard one coyote howling. The whole region ~~with rock~~ on top which beautiful to the eye is disappointing in a way in that wild life is not more abundant. The canyon visited today was more productive and it is probably that

that wilder forms are now found in the ~~mesa~~ canyons leading down from the mesa. I saw one Bear track below cottonwood Pass the day we came in but have not seen other sign of them.

I found thistles more abundant today than previously and collected quite a few. (specimen of Eremobates silvestris Putnam in bed with me this morning)

Returned to camp about one.

Cared for a number of birds and one or two mammal skeletons.

After supper I followed some Clarks Crows for nearly a mile without being able to get near them. It was cold and windy in the evening. Our camp is in a place exposed to the winds and if we were going to remain I should move to some more sheltered locality.

Peromyscus are known here as "hogan mice."

I see Navajos here constantly. Men hunting horses are passing camp constantly. Today two Navajo boys came up and looked us over.

July 1, Monday

Quite cold and sharp this morning. Was up at six and cared for insects collected yesterday. Cyanide bottles are sweating badly. After breakfast I took my traps and went over to Long Lake. Found the water about knee deep in most places, perhaps a trifle more in the center.

A tall grass (-a speciosus) forms a floating bed in the water. The broad leaved Potamogeton was common and in open water I collected a narrow leaved species resembling pectinatus. A yellow flowered plant (Marsilia?) was also common. An old Navajo told me that they used that and the Potamogeton (broad leaved) in the dance.

There are two pairs of coots here and one of Blue winged teal that I suspect may be nesting. All the ducks seem to be transient.

There were numbers of tadpoles in the lake and I saw one Amblystoma.

Frogs are extremely abundant. Here and there attain large size. I collected four or five specimens.

An old Navajo was much interested in my birds and wanted me to shoot a chaske crow. This I did as I wanted the specimen and he was much pleased.

The Navajos call the spring where I am camped "Tsa-'tah-eske."

About eleven I began to pack and at 12:20 we were loaded again and drove about five and six miles south and camped in a sheltered canyon head above a small lake on the west shore of Black Lake. Camp here is in the sheltered head of an aspen grove with yellow pines on the flat above. (Bo... [illegible])

There was only a horse trail from Ft to Black Lake but we made it without much difficulty. Several pig bands of sheep were encountered and others came in about camp this morning. Several Navajo tried to stampede our horses by driving bands of ponies by them, as we were packing, but did not succeed.

There is very little feed about the new camp and the water is poor.

Made camp about two and collected insects by beating until dinner was ready. There is not much of yellow pine at present. I found many leaf shelters of Neotoma but most of them were unoccupied.

After eating, corralled camp and watered horses should to pass over. Then took my boots and went over to Black Lake.

There is a small lake below camp of the usual type with water in it. We flushed 11 Mallards from it. Another watering lake lies to the west and there is a dry one above camp.

Found that the greater part of the lake was from 18 inches to two feet deep. An Eleocharis grew out here in the water and with it was an abundant growth of a Polygonum. Also a broad leaved Potamogeton, and the Naiadia?. There were areas of Scirpus occidentalis also. I waded around out in the water about 6:30. Found a colony of Eared grebes and counted 45 nests.

about one third still contained eggs but the others were empty. Saw a number of young grebes.

My original estimate of 25 pairs of Coots for this lake is I think correct. On addition I saw a pair of Ruddy Ducks. Eleven drake mallards came in and alighted and I flushed one other in full eclipse plumage.

The absence of Blackbirds and marsh wrens here is very noticeable.

Returned to camp toward seven. Wells (camp man) was boiling some lake water but it did not look very good. I took the shovel and dug a hole in a small draw beyond camp and struck moist sand above a hardpan at about 3½ feet.

Rain threatened all day and we had several showers ending in a slow drizzle toward night. Much of the rain still seems to pass south of us though we have apparently come into the edge of a rain belt.

Worked until dark caring for plants and other things. Made my bed in the edge of the aspens. It was sprinkling a little when I turned in.

July 2, Tuesday.

I woke up once or twice in the night and found that it had cleared off entirely. The moonlight in the aspens was beautiful as it brought out

the light trunks against the black shadows. Cold and sharp during the night and rather damp early this morning.

I was up at six and found the sun hidden by a bank of cloud. Half an hour later the rays were coming through the trees. Cared for mail. Collected yesterday afternoon first and then finished writing notes for yesterday. A Pygmy Nuthatch alighted on a stub within two feet of me and looked me over while I was doing this.

About eight I went on out south to continue my survey of this lake area. Passed through an area of nearly solid yellow Pine forest that was nearly 1½ miles wide at first. A few small lakes containing water were scattered through this and I found dry beds of others. Many of the lakes were almost concealed in the woods. I flushed single Mallards from the more open ones occasionally but saw no indication that they were breeding. Beyond here I came to a broad opening extending nearly across the high mesa from east to west. On the eastern end of this was a lake about ½ mile long by ⅛ mile broad. It contained a considerable

growth of the round-stemmed tule and aquatic vegetation similar to that of Black Lake. There was very little fish water in it. As nearly as I could estimate there were about 20 pairs of Eared grebes here and about 10 pairs of Coots. No ducks were found at all but I saw one pair of Killdeer.

On the west this open space ended in a cliff 100 feet high from which I could see the second mesa below covered with forest and beyond the yellow plains. Ship Rock was visible to the north through a heavy haze.

Below here there was first a broad rise covered with forest and then the plateau began to break away by degrees towards Tohatchi. On the first broad level I found two or three small lakes but found nothing of importance. This was the end of the lake area.

From a high point here I had a general survey of the whole region North to the high point above Cottonwood Pass.

From what I have seen it seems that there are three lakes, Long Lake, Black Lake and the South Lake that are suitable for breeding waterfowl as they contain permanent water and

are covered with aquatic vegetation of the proper sort. Six additional have been dug about twenty five smaller lakes containing water & they are frequented by ducks, which they are so numerous. Dry beds of about 40 of which are of importance when filled with water.

At present the lakes retain the three ways ones are ransacked for breeding grounds and those that do not offer favorable conditions because of the horses that are feeding all through them constantly. These animals do not seem to injure the nests as I cannot many in Black Hall yesterday but they cut down the cover. There is no sheltering vegetation along the shores or back from the shores in which birds might place nests as all grass is eaten to the ground by stock. In case it is desired to set aside a breeding ground here it will be necessary to fence and to hire a watchman to protect it.

The entire area below the pines and aspens is absolutely bare of shrubby cover and the open areas are grazed constantly. We are having difficulty in getting horse feed out to us. Many more

sheep are coming in from the south and this morning I passed bands aggregating at least 4000 individuals. At the south end of the mesa was staged barricade. I estimate that at present 6000 sheep, 350 horses and ~~1000~~ 1050 cattle range here in this lake area.

Returned to camp about one after long tiring walk.

Two pairs of Killdeer in addition to the one below camp were located.

About two it began to rain and rain continued intermittently all the afternoon. I had intended going out again but worked all the afternoon caring for material, packing etc. The work went very slow and had to do everything in the shelter of the wagon so dry as possible. It rained steadily while we were eating supper but then stopped. About seven I walked out east across the mesa.

In a small lake in the woods I came across a pair of Mallard with twelve young about a week old. These are the first that I have seen though I have thought that single females flushed from three small woodland ponds have had young concealed there.

Walked across from here to a long canyon leading to the southwest.

from one point here I was able to get Baigaichi and by this means to finally check up my position on the map. I have been somewhat uncertain all along as the Century map shows this wagon road crossing ten or twelve miles farther north than it does in reality.

Returned to camp at 8:30. A slow drizzle set in and continued for most of the night.

July 3, Wednesday.

A heavy fog covered the mesa when I awoke at six and after I had dressed a slow drizzling rain set in. This continued while we ate breakfast and packed up. Hooked up in the rain and pulled out for Crystal at 8:00 a.m. The road was not bad and we made the top of the ridge without difficulty and there descended to the wagon road into Cottonwood Pass. Ours is probably the first wagon outfit taken in here by white men though three or four Indian outfits go in every summer.

We camped at about 7600 feet in the Pass for noon and remained until about one thirty. There was a fine growth of young blue spruce here and I wanted to collect it by boating but rain continued at intervals and I was forced to content myself with a few bees, beetles, etc., taken with the net. There was nothing remarkable here in the way of birds. The aspen growth was

pine here some of the trees attaining considerable size. Saw and old bear trails along the stream.

From here we drove down to Crystal encountering a heavy rain on the way that made the road very slippery in some places. Once or twice we came near going over the bank but finally made Crystal without mishap about 4:00. Admired the oaks in the canyon again immensely. Some of them were 15 inches through.

Camped at Crystal for the night. Met Mr. & Mrs. C. C. Manning of Gallup here. After writing up my notes I count over and count the sheep at the trader's house. Mr. Manning has been in this country for 25 years and had much of interest to tell. He is from New Charleston W. Va.

Saw an old Indian tonight known as the Laughing Doctor who has been in here for many years. He is the Indian from whom Dr. Mason obtained most of his Navajo legends (Published in book form) Old Doc who is 80 years old carries the mail from Crystal to Fort Defiance, making the round trip of 50 miles on horseback in a day.

Ran the canyon at noon & talked with a Navajo who knew the upper country in the Chuscas well. He told me that the long lake near which I made my first camp

had no name save that the spring was known as tsa-'hah-case. The large lake below is known as Be-e-khet hum-ney. The third large lake below is called To-tah Khih meaning Black Lake.

It was cool and sharp at night with rain threatening but the sky cleared after one shower.

July 4, Thursday.

Was up this morning at six and later when the sun came up it was fine and clear. Mailed a package containing a raven and a Clark's Crow and another of exposed Kodak films at Crystal. Packed some thing this morning and rearranged the load. Left Crystal at 9:00 a.m. Drove out through an undulating area covered with Pinyons. The two were covered with green cones here and there promises to be a good crop. Mr. Manning told me that the last big crop had come in 1906. There is considerable demand for the nuts in the east and several car loads are shipped from Gallup during good seasons.

Drove south to Red Lake and decided to stop and there to look around again. Saw no ducks here at all this time. Camped two miles beyond here for noon and then went on towards Fort Defiance. Just beyond Fort Defiance a heavy storm of Rain and Hail overtook us and the roads were soon running with water. We passed the average home

before ~~rain~~ ~~came~~ the floods came down
at the Hanglack's the ground was nearly
dry. Collected some seeds that were
imbedded in sandstone rock crevices here
Camped for the night at 5:15 on a flat
half a mile east of the Hanglacks. Water
near in an arroyo. Very muddy. Drove
33 miles today.

In the evening I walked up over
the hill south of Camp. Found a
Navajo grave here, perhaps that of a
child. The body had been thrown into
a crevice in the rocks and flat stones
thrown in on top of it. Finally two forks
were thrust in that prevented predatory
animals from getting into the crevice.
A pack rat had built a nest over the whole
thing. Went on over to a Navajo
hogan nearby and tried to get a blanket
but found none. Gave a little girl a
dollar for two bracelets made of silver.
Cool night with a storm threatening.

July 5, Friday.

Broke Camp this morning at
7:00 a.m. and started for Gallup. A
heavy storm soon overtook with
wind and driving shots of rain lashing
the wagon. The ruts in the road were
running full and the arroyos were
rising rapidly. I was glad to get
across the forks before the water
came down as in a short time they
would have been impassable.

Statement of expenses June 1- 30, 1918.

Wm Price Town Sundries	12.00
F M Quinn " Living	50.00
Transportation reg.	18.55
Town Cash Sy.	104.70
	184.25
Amount available June 1	166.60 20.00 186.60
Unexpended balance	1.35
Estimated expenditure for July	150.00

after a short distance however we passed out of the storm area and from here on it had rain very little. Camped at noon near Rock springs. Finished packing my outfit here ready to ship and then went on into Gallup. Took my baggage to the station, and forwarded a box by express.

Found at the post-office that they had continued to forward Remick to Crystal instead of holding it after July 2 as directed. Fortunately had written the postmaster at Fort Defiance where mail is made up for Crystal to return same to Gallup. This should be back about 5:30 this evening.

Went to the Harvey House got a room and took a bath and cleaned up in general. A cloudburst passed north of town and gave everything a thorough drenching.

Received mail at 6:00 and found that as the appropriation bill has not passed I have only $150 under the Protection of Migratory Birds authorization to carry me until July 31 and no Food Habits authorization in sight. Have about $90.00 of this still available. With this amount it is impractible to continue this field work. After studying the situation it seemed best to continue to Williams, Arizona and to work on reports there. My Food Habits authorization

when it comes so to be available from Williams and I can live there more economically than here. Am going to have my choice of a poor room with bugs at $1.50 or a good room in the New House (without) at $2.00. My funds would not last long at this rate. A pretty plain statement any body.

The country around Jallup is dry and desolate at present and all herbaceous vegetation has been eaten down by sheep. Went to bed at eleven.

July 6, Saturday

Was called at 2:30 A.M. and left via the Santa Fe for Williams Arizona at 3:10. Paid cash for ticket as I had no Transportation Requests available. It has rained heavily clear across to Winslow. The Rio Puerco, usually dry, was running bank full. The country near Winslow shows a great change through irrigation.

Arrived at Williams at 11:30 A.M. This town has shown much growth and now has about 1500 inhabitants.

Secured a room in the house where I lived when here in 1907 and had my baggage sent over from the station. Took dinner at Mrs. Wagners.

Worked during the afternoon on notes and correspondence.

In the evening walked up to the

down above town. Rains have started and things are looking fresh and green.

Completed my expense account for one this afternoon and sent it in with an account of the Chusca Mountains.

Went to bed at nine dead tired.

July 7, Sunday.

Was up this morning at six it is with my headache as usual from staying inside again. It is pleasant and cool here however.

After breakfast I went up to Bill Williams mountain and finally climbed up to the lower hill below the peak returning at 2:00 P.M. The sky was overcast with rain threatening so that it neared comparatively few tourists but had a pleasant morning with the birds.

Above the town is a broad flat at above which rises a second level at about 7300 beyond this again is a hill at about 8800 just below the peak itself. The flats are covered with the remains of a yellow pine forest and the few cedars. Extensive growths of oaks were encountered and with them thickets of locust (Robinia neo-mexicana) this was in flower the pink blossoms being very attractive. The ground was rough and stony the rocks being rough shards of lava.

the a gulch leading down from the mountain with a few aspens and march Douglas fir. The gulch apparently was Canadian with the slopes above and below transition.

Birds were common all through here. Found a fellow of some sort hunting he had killed two rabbits and a Morning Dove. Located two fine springs of clear cold water.

After dinner I worked on correspondence and notes again and continued this in the evening until nine when I went to bed. The evening was clear and warm.

July 8, Monday.

Clear and fair today until evening when it clouded up and began to rain. Worked on notes and reports from 7:30 to 12. After dinner, had touch of indigestion and walked south from town for exercise, collecting insects. Many nymph spittle insects on Chrysothamnus and I collected several. Also an Evania that looks interesting.

Found a brood of young Canyon Wrens and returned to town for camera getting several pictures before the sun went under a cloud.

Returned to town at four worked until six and again from 7:30 to 9:45.

Rain in evening.

July 9 Tuesday.

Was up this morning at 6:30. Ate breakfast and then started writing at 7:30 and worked until noon save for a few minutes when I went out for mail. Received a letter from office dated July 3 stating that it would be necessary for me to transfer to Food Habits at once but no authorization has come as yet. Worked 8 1/2 hours on reports today and have Bake Burford Report fairly well blocked out. Rain & cloudy during day.

In the evening it cleared off and I walked up the canyon south of town to the flat above. Saw two cottontails both very tame. Then on ridge I came on to a buck mule deer that had come down for a drink from a small stream. He acted uncertain what to do though only a hundred yards away. Stood and watched for a while then ran his legs a few forward and then walked slowly up the mountainside occasionally becoming frightened and giving a few stiff legged jumps and then pausing to look at me again. Norma were just starting around me so I took a few pictures against the pines and aspens.

Also saw one Rock Squirrel.

Though the sun was two hours high the canyon was in shade and birds and insects were quiet and moving about little. Nature

bus was all hidden but they was were working on Rubus flowers (as but as 5:30.

Returning I collected an Hyphantria larva, ♀ adult male

Went to bed at 9:30

July 10, Wednesday.

Was up this morning at six, shaved dressed and had breakfast. Was given something spoiled at the Hawley House Yesterday and had a severe diarrhoea all day. This is twice that this has happened here in Williams.

Wrote 9 hours on notes and reports today and finished the first draft of the general part of the Mt Blanford Report. And the late afternoon I went through my notes carefully for facts that had been admitted and should be added.

No mail today, so wired the office for whereabouts of paycheck for first half of June and Food Habits authorization.

In the evening I walked out west of town, a very good auto road, on the National Highways has been built through here and there is an excellent road to Ash Fork. The land that was formerly pasture land is now all under cultivation. Outside of that there is practically no change here.

The slopes and the country are all a clear light green now from fronting vegetation and the country appears

pleasant. The whole mountain area here is now in the Sequoia National Forest.
Found good collecting tonight by beating and secured some good Hesperiidae.
A storm came up from the west so that I returned to town about 7:30.
It is cool and pleasant here all day.

July 11, ~~Wednesday~~ Thursday

The sky was overcast nearly all day and about noon there were heavy clouds all around. It was very cool today. Temperature of about 40°+ this afternoon. Worked in reports all day. Finished the general report on Lake Burgard and prepared the first draft of the Chuska mountains work. Work nearly 9 hours and was tired at night. Ate the evening I went out south of town going over a series of hills of iron with rough broken lava rocks and jointed with small yellow Pines and oaks. Mountain mahogany (Cercocarpus) is common here. The flower is a fragrant white flower about 3/8 of an inch across. The foliage is now fresh and green. I did not recognize this shrub at first as I had not expected to see such a blossom on it. The country at the head of the canyon here is made up of rough broken hills with little flats between them. I had good collecting today by beating on Cal. mahogany, cedar and yellow Pine. Met a trapper camped here named Jones. He had the hide of a good sized wolf with him. Returned to town at 9:30. Back at the tent

July 12, Friday.

The sky was overcast this morning and about noon a rain started. It rained heavily near all the afternoon not ceasing until after six o'clock. It was a wet that in the evening I only walked up as far as the dam and back. Worked on reports today and finished the Chaco mountain report (General report) Also wrote about 25 pages of Bird report. Worked nearly 9 hours on them.

Received mail packages forwarded from Gallup July 5 today. Had sent them in the Santa Fe baggage room.

Returned boots to the office by mail. Payroll for last half of June. Apparently lost 20 hours requisition issuance of another. Packed box of birds & some alcoholic ants for mailing.

July 13, Saturday.

Very damp this morning but clear all day. Worked eight hours on reports and accomplished quite a bit. My Bird Report for Chaco Lake will be quite extensive.

At noon I walked out toward the Grand Canyon railroad track and looked for Amphispiza nevadensis but could find none. The Western Meadowlark seemed to have displaced this bird here. I wonder if A. nevadensis is gradually extending eastward and driving out the eastern form.

My eyes were giving me much trouble this afternoon probably from too close application to writing.

Ike the evening I walked out West and returned striking the words by another route. Then that Mexican Plums had come in.

July 14, Sunday.

A fine clear day, cool and pleasant all day long. Was up before seven and about seven thirty walked out the canyon south and followed out along the hills at the east base of Bill Williams Mountain. The country was rough and stony and cut by many small draws coming down from the mountains. It consist of rather small trees of Pinus Ponderosa covering the entire region with many oaks and some Douglas Firs. There was a few cactus although rare in small hill pockets and slopes around it is heavily wooded. Altitude about 7000 feet.

I walked south between 3 and 4 miles and then swung around and returned to town.

Found birds common out through there but not many in variety. Collected a number of things. Spent the afternoon in caring for these specimens and repacked my chest.

Eyes much improved this evening.

July 15, Monday

Wrote 8½ hours on reports this evening so did not go out anywhere. Am making good progress on reports

July 16, Tuesday

Wrote 8½ hours on reports. Have completed 160 pages of manuscript while here.

Rain this morning.

July 17, Wednesday.

Received instructions & letter of authority from mail this morning. Packed baggage and sent it to depot. Wired office giving address care Garlough, Sacramento. Left forwarding address at office c/o Colonial Hotel, San Francisco. Left Williams via Santa Fe. 11:30 a.m. Arrived at Needles 6:00 P.M. Had over three 4 hours waiting for another Pullman. Met Bovoly in Needles who was manager for Fred Harvey at Ash Fork when I was there 12 years ago. Is now at Needles.

Had to wait at the station here to catch the Pullman conductor who had neglected to return my ticket so could not get out in the country until seven. Walked east along the railroad track bordering the Colorado River. There was a growth of willows & Cottonwoods here and there & shrubs that I did not recognize.

Saw several Chuckwallas & lizards very fast and Pupfish about. Also one Gambels Quail & tried to collect [illegible]

Back from the river now I found it very dry and sandy. Mosquitos bad also red coats

Was out too late to get much but picked up one Mutillid covered with long white hair. (Dasymutilla gloriosa)

Watson here tonight but not officially so. Left Needles at 10:40 P.M.

July 18 Thursday

Awoke this morning found that my Car had been set out at Barstow to wait the coming of another train. Was up at six ate breakfast and then walked out across the river here. There was a huge intrusion of lava rock here right at the crest of the river. Country was undulating sand exceedingly dry. Picked up a few insects.

Left Barstow at 8:00 A.M. Reached San Francisco 10:15 P.M. Latter warm travelling. Registered at Colonial Arms Hotel.

July 19. Friday

This morning I took the ferry across to Berkley and spent the day at the Museum of Vertebrate Zoology. Sky was overcast and the air cool this morning so that I was glad to wear a vest.

Met Mr. Sawarth and Mr. Grinnel at the museum. They had no directed information in regard to Gnatcatcher being killed with our poison operations but had heard discussion of the matter.

Mr. H. C. Bryant was here and I spent

an hour and a half talking with him. He said that this ~~question~~ matter came to him more as a question than anything else and that in answering he used the data furnished by the Public Health Service.

Quail are most abundant here in the San Luis Obispo County country and in the foothills of the Sierras. The mountain Quail is practically gone from the coast range but is still found in the Santa Lucia mts. It is claimed that in dry season valley quail do not breed but remain in flocks through the summer. This is given as one of the reasons for their decrease. There seems to be no foundation for this however in reputable observation.

Bryant issued me a permit to collect birds for scientific purposes.

I had lunch with the friends of the Faculty Club & met Thos Allen curator C.C.C. also Mr. Allen. Met J. Dixon at the Museum.

After lunch I spent three quarters of an hour in the zoological section examining skulls of Zenaidura, Rey bones of Paraspaxo etc. There is a fine lot of material here.

Returned to the museum and looked up some points on skins that I wanted to study. Also looked through the skeleton collection they have a very good lot of bird skeletons here, well classified. Must go

from were duck hunted. Noted the following of importance =

Xenopsaris	Duck
Picoides arcticus	"
Cypnorrhina	Skull & bird
Pica nuttalli	Complete
Corvus corax sinuatus	"

Had dinner with Mr. Grinnell & Mrs Miss Grinnell & daughter. Elsie - wife & a baby. A very pleasant evening. Left Berkeley at 8:00 P.M. & returned to San Francisco.

Sent a night letter to J. E. Gardner & one to Mr. Lee appointment & Chicago fishing matter.

July 20, Saturday.

Worked this morning on some notes and papers. Called at the California Fish and Game Commission at 9:30 and spent one hour and a half with Mr. J. T. Hunter, Executive officer. They have had some complaints of poisoned quail but only one recently. Made an appointment to meet this man on Monday morning. Complaints of killing bears are frequent and I met one game Warden, local warden at San Luis Obispo who was in. He said that he had killed 140 bears recently.

Made inquiry concerning net ducks on the Imperial Valley but could learn nothing more than I knew as that area is under the direct jurisdiction of the Los Angeles office. Heard recently

is Williams that it was raised among farmers at Long Beach that the farmers had ordered 12 tons ducks to prevent damage to crops. Therefore the Long Beach men had not gone down there hunting that fall as they were afraid of the ducks.

That P.M. B. W. Evermann, Director of the California Academy of Sciences at the Palace Hotel Oct 12:25 and I as his guest attended a luncheon of the Commonwealth Club where I heard a very able address on the Moral aspects of the War by the Rev. C. R. Brown, a broad minded man and one who despite this profession was not afraid to speak straight out from the shoulder.

After this we went out to the Museum of the California Academy in Golden Gate Park. The present building is supposed to represent in the west wing a completed structure. It is made up of a central portion and two wings, each division being 180 feet long and about 40 feet deep. The Main Hall was an exhibit of 12 Mammal groups and 10 Bird groups, all very well executed. Also with a collection of relief maps made up the exhibition part of the Museum. The offices & laboratories were in the second and third floor. Mr. Van Denburgh had a roomy office with storage space below for his collections "herpetologics". The shelving was of wood

with short divisions each of which had a bar across as a safeguard to the bottles against the jar of Sabatti-quakes.

The Director also had ample room.

Visited the Division of Botany found the collection, about 40,000 sheets housed in the usual type of Herbarium Cases with folders. I threw out the Smithsonian. The folders show an improvement however in that instead of being simply a fold on a board a strip, on the bottom is a short division that folds in keeping the sheets from slipping out of the folder

The collection of birds occupied a room 40 feet long by 20 wide. Leaving a small space in the center the room was filled with quarter unit cases. It was stated that the collection was made up of 18,000 skins, mainly Galapagos & Costa bird skins. The collection of Mammals was in another room but was much smaller so that there was more room for expansion.

Dr. Evermann had heard no complaints of poisoning quail.

Saw Hornaday's paper on albatrosses, etc. which was just out. He gave however offered to print me one.

Dr. Evermann made me an Honorable

[illegible] a position as Curator [illegible] Entomology with the Academy, this place has been open for annual years. Place to carry $2000 or possibly $2500 for year.

Rock Rid[illegible] some things in [illegible] collection that I wanted to see to verify points that have come up in my field work. Left the museum at [illegible] and returned to the hotel.

July 21, Sunday.

Rode out to Golden Gate Park this morning and walked down through the Park to the ocean collecting a few insects and observing birds. There was a broad sandy beach on the water with many people wading, bathing and [illegible] of collected a few insects here. Much Kelp was washed up along the beach and I found many Amphipods in it. Insects there were scarce. The air was cool and pleasant. Saw one three-masted sailing vessel standing into harbour but nothing else on the water. Had a look at the seal rocks also.

Returned to town afternoon July 3/4 the lunch rooms closed up on Sunday so that I have had trouble in finding a place to eat today.

Spent the late afternoon in reading this week's issue of Nature.

July 22, Monday.

Worked on Stinking Lake Report from 8:00 to 11:00 this morning.

At 11:30 I went to the office of the State Fish & Game Commission where I saw Mrs. J. F. Hunter and met Mr. W. Lawrence of the Spring Valley Water Company by appointment. Mr. Lawrence has complained of killing of quail by poison spread for ground squirrels on his properties. The Company has under control about 30,000 acres in San Mateo County and about 60,000 in Alameda & Santa Clara Counties. On these areas no shooting is permitted save that one of the officers of the company is said to do a little shooting each year in the latter ground.

Poisoning in this region for ground squirrels was done by the Public Health Service and consequently handled the poisoned grain very carefully. In consequence two of the employees of the Water Company picked up several dead quail apparently killed from poisoned grain. Last year with the establishment of the training camps there was renewed activity in poison operations and men were sent into the San Mateo County holdings to poison. They spread the grain according to reports to the least as one would sow by hand. Mr. Lawrence stated that the idea seemed to be to dispose of the grain without much attempt to place it where it would do

most good. He immediately had this effect as he considered. If dangerous not only to birds but to deer and had discussed with the poisoning, placing the poisoned grain in the ground and not outside. In this way he claimed that efficient results were obtained with no danger of innocent birds. He based his claims of losses among quail on the sudden decrease among the birds after the poisoning period. He said that in former years after poisoning had been in for an estimated decrease among quail of 75% is significant fact that it was considered that practically no shooting had taken place. He estimated that 1500 - 2000 quail had been killed.

Mr. Hunter said that he had been receiving complaints against poisoned quail that they had placed a reward of a dollar each for birds killed in this way but had not received one. He said that a number of quail had been killed in poisoned areas and an analysis had shown a positive reaction for strychnine. He recently observed the birds in good condition.

Made arrangements to go Thursday to Bend and spend two days more in these tracts.

Had lunch at quail Berkely again this afternoon but found it was too late

[illegible] I finished at the game Commission so went out to the Calif. Academy. There met Mr Loomis. Chased after the afternoon with him. Looked up some data on rabbits & birds & ran.

Decided mail today, mainly a lot that was lost at Gallup. This included my last pay voucher. Wrote the office to repeat if it had been cancelled.

Received a telegram from J. E. Gaylord giving his itinerary. With him looking for appointment for Berkeley on July 24 or 28.

Spent the evening in writing and went to bed at eleven.

July 23, Tuesday.

Worked in Reports this morning from 8 until 11:15 and finished the Grath Bunford Report. Ate lunch and then crossed the bay via the Key Route to Berkeley. Clear and pleasant today. Reached the Museum at the University at one and worked there until it closed at a quarter of five. Looked up some literature on quail and examined specimens of quail and other birds. Talked with Mr. Grinnell and met Mr. Collins who is doing work for a Doctors degree. He studying moths on Peromyscus. Spent half an hour in looking over some skeletons.

Berkeley 7-23-18.

Lophortyx.

a. back, flanks and crown mouse grey, brown areas paler

Vallicola.

Throughout the state east of the humid coast belt, west of Mohave & Colorado Deserts. Found at the coast from San Luis Obispo County southward.

aa. back, flanks and crown browner, brown areas darker

Californica

Upper Sonoran & Transition zones in humid coast belt South to southern Monterey County. Includes the whole of the San Francisco Bay Region east to Mt. Diablo.

Quail have been introduced at many points by the activities of the Fish and Game Commission so that the question of the range & affinities of quail without specimens at hand is a difficult question.

Returned to San Francisco arriving at 6:10 P.M. Received wire from the office stating that July check could be cashed. After eating I walked out Market St. Visited Baker's bird store at 1112 Market. They were offering male Linnets (Carpodacus) at 25¢! 99¢ cheaper!!)
Was in Holmes Book store at 703rd St., & bought one or two things. Has a fair stock.
E.D. Keller is in town, is married and is on his way to Java with Rainey. I talked with him on the phone this evening.

July 24, Wednesday.

Called at the Field and Farm Commission this morning and was given a pile of some letters regarding proposed quarantine. Met Mr. John J. Leiden who prepares poisoned grain according to our formulas and calls it a sanitary service. He was reclaiming barley getting first class brewing grain and then was just reclaiming to remove all chaff to waste no strychnine. The reclaiming process has a tendency to rust some of the boards.
The belief is that use of barley (unhulled) for poisoning birds as the birds will not pick up the kernels because of the beards. Mr. Lemmon however stated that this statement required some modification as so many of the boards were broken.

charge of
W. C. Jacobson ~~of~~ the State work now is as a strong advocate of obtaining the grain broadcast as he claims that the squirrels take it ~~them~~ and fill their cheek pouches and carry it away and are poisoned thus. When the grain is placed in the burrows however the animals kill and are not poisoned unless an excess of strychnine is used so that the poison works through the membranes in their lips. Mr. Heiner stated however that at the request of one Client Mr. A. W. Borden 414 Montgomery st. he had prepared poisoned rolled barley. This was placed down the holes and Mr. Borden reported good success.

There is general complaint against the broadcasting method as it is felt that it needlessly endangers deer as well as quail and other birds.

Mr. Heiner has had with the Public Health service and is (?) conservation chairman.

Took my suitcase down to be repaired. Also my shotgun.

Got them back late this afternoon. Got through my outfit and took out some things of which I no longer have use and sent them to Washington. Also a package of books. Postage 1.35

This afternoon I prepared my expense account to date and wrote a letter

to the office giving consist of work to date. Work on Utica Reservoirs commenced the 24th inst.

I forwarded Lake Buford report to Washington by mail registered.

Saw Keller on the evening and met his wife. Expects to start for Utica on Saturday.

Arranged to store baggage at the hotel while absent on short trip.

July 25 Thursday.

Was up this morning at six shaved and dressed and left the hotel before seven. Ate breakfast and then left San Francisco via the S.P. at 8:00 a.m. for Suisun. Arrived at Suisun at 10:10 a.m. Mr. W.B. Lawrence of the Spring Valley Water Company met me there to my astonishment as I had not expected him. He took me to the Glen Hotel. Then to the offices of the Spring Valley Water Company where I met Mr. Eastman general manager and Mr. Wallace Albright in charge here.

These gentlemen said that persons had been arrested on their holdings by reason of their water users shooting. Last year it was discontinued by seeing a flock of quail at a certain spot each morning. Poisoned grain was spread here and immediately it gained a number of dead birds. And a considerable part of the flock was killed.

Mr. Eastman said that in 1916 and 17 he had them exceptional seeing flocks of

Count at certain points above here in riding along the roads. If the poisoning had taken place each year there was a sudden marked decrease in the young birds. No dead ones were found but Mr. Eastman attributed this to the activities of predatory animals which are common. This occurred each year before the opening of the hunting season. No shooting is allowed on these holdings and there has been none since 1905 save when some hunter slipped in near the road.

Mr. Enright took me over and introduced me to Mr. Herman Schroder driver of the water wagon in question. Mr. Schroder said that one morning at a certain tank he usually accustomed to see a flock of quail containing about 52 or 53 birds. Of this area was poisoned and immediately the following morning he found two or three dead birds. These were found every day, 11 in all, found at one time. The entire flock is also destroyed. He examined several dead found no signs of injury. There seemed to be no doubt but that they had been poisoned.

I heard no report of this ever being poisoned several years ago.

After lunch I wrote a letter to Yarlough telling him I would be in on Tuesday afternoon. Wrote up a few notes and then met Mr. Enright about one

Through the courtesy of the Spring Valley Water Co. I was given the use of a machine to take me out to Belleviews ranch about 10 miles east. There I met Mr. John Schroeder foreman. He said that they had had no trouble in growing feed and had not heard of complaint among his neighbors. He had been poisoning by putting the grain down the burrows but said that last year he had had little success though he had killed them in other years. There are comparatively few squirrels in here.

This watershed was all in the holdings of the Spring Valley Water Company.

The region is one of rolling hills and winding valleys. Live oaks grow in little groves and belong patches while the slopes and hill tops were given to grass. Nothing else is to be seen. The road traversed is very good but runs through pastures and fields and up and down hill. Birds were common but not in large variety.

Sunol is a place about 20 miles to the S.P.R.R. & W.P. Ry.

Returned to town at 3:00. Wrote up my notes and then at 4:00 went up the Gulch south of town. The name of the stream was said to be the Valbuenas. The creek bed was fairly broad but but stony and most of the water is taken out for use in San Francisco.

Rode up here 5 miles to the Pleasanton Bridge and back on horseback. Shall go up here again

about tomorrow so shall not say much about the country.

Was given a thoroughbred saddle horse worth about $200 by the citizens of the Country of Mr. S. P. Eastman. The animal was broken to 6 distinct gaits, not being accustomed to the English method in riding. Did not try much fancy work. Horse was an easy riding animal 5 years old, sorrel but gelded.

We rode along the stream bed and in all all I saw about a dozen pairs of quail. As it was hot the birds were inactive. The birds seen were along the stream bed in brush. Mr. Bork who was with me said that last year he had picked up 1000 dead birds & that he supposed had been killed by poisoning. These birds were in the dead bed of a well tank that we passed, same locality as that given by Mr. Schroeder and from the same lot and at the same time. Apparently from accounts this was authentic. The flock of about 50 birds were poisoned near this water tank by poison spread for squirrels. A number of birds were picked up. This and the fact that there has been a decrease in the number of quail during the past three years undoubtedly offset the fruiting of poison on the basis of claims made that poisoning operations are

inimical to the bird. The Spring Valley People are convinced that Lindsay Gardiner Killed and while hunting by accord with the work of Poisoning squirrels, which he has again Indiana detailed to do it without injury to the birds.

All poisoning here is done under the control of the Public Health Service. A man is stationed here with this territory in charge.

I saw a wood & many scattered ground squirrels today but no large colonies of them.

Did not reach town again until seven P.M. By the train it was three hours it was nearly dark.

July 26, Friday.

Went out this morning following up along the stream South of Storm and reaching a point two miles south of the Roadside bridge. This stream is known as the Valladito and has its lower course has all of the water taken out above it is still a running stream. Rolling rounded hills on either side are given to grain and are now yellow and brown. Hollows on their slopes were green with live oaks. In the valley & down below live oaks were scattered through the fields which on the stony soil were cultivated

bushes near the stream were many Sycamores. Willows were scattering along and I saw hollies and live Oaks.

The Valley narrowed above the bridge so that the stream ran between steep hills.

South of town near the office of the Spring Valley Water Company the borders of the stream were dense ~~and~~ bushes and vine growths and were covered by below a level and in all I saw four birds in a distance of 400 yards and they were concealed in the brush. While it was still cool the birds came out to feed and scratch in the dust of the road up the level which was entirely covered with the pattern of their tracks and I flushed several Coveys here. The birds flew down into the brush below where they alighted among low branches in the trees or on the ground. The brush was so thick that I could not walk down it but I walked along the edge to where it interlaced with others from another tree and then crossed. Most of the grey birds were nearly grown. I saw no individual about a third grown. One flock walked about in a patch of beans where they picked insects from the bean vines. When not disturbed they came readily

out to feed in the open but took shelter at any alarm.

Above here the country was drier and more open and therefore less favorable to them and it is then that so many are said to be poisoned. I think however that the number is been exaggerated & few birds or their eggs at interval all along.

Above the Poodle Bridge some one had been shooting them & picked up one male that had both wings broken and was shot in the breast so that it was unable to fly. It had been hurt about a week before. I put it out of its misery and kept it as a specimen. Apparently it is true Valleria.

Returned to town at 4:00 and then went out at once and worked up the gulch north. Killed a few snakes but saw little else. Returned to town at six. On the evening talked with Mr. Enright and Mr. Eastman.

The days here are hot but the night cool.

July 27, Saturday.

Left Susanville this morning at 6:10 a.m. and reached San Francisco

at 7:45. Breakfast at the Colonial Arms Had breakfast and then Cleaned.

Talked with J. T. Hunter on the phone.

Attended to some shoe repairing and some other errands and worked on notes until noon.

ate lunch and then crossed to Berkeley. Met Grinnell and Wilson. They were working yesterday near Fordyce in a region poisoned about 48 hours before for Squirrels. They watched for dead squirrels but found none.

Met Mr. M. A. Carriger. He had heard of complaints of poisoned squirrels and has seen some personally.

Met Mr. T. B. Yarbrough who is in charge of our Campaign here against ground Squirrels. After talking with him I decided to go to Bakersfield and from there to Hesperia. A poison crew will start operations there Monday or Tuesday. Mr. Yarbrough has seen no poisoned squirrels. I asked him to instruct his assistants to watch for them.

These gentlemen left us and thanked the Kindness of Mr. Grinnell. It was possible to work in Joint museum until six, looking over specimens. Returned to town at once.

July 28, Sunday

Was up this morning at seven. After considerable trouble succeeded in getting my baggage transferred to the station. The Company refused to handle it entirely and it had considerable finding me that would. Finally got it off about ten. Worked on Express account for awhile and then secured tickets for Bakersfield and arranged to leave at 5:00 P.M. Wrote on notes and correspondence until 4 P.M. Following this I walked it a day and went out to the Cliff House.

Three sea lions were out on the rocks one lying on its side with its flippers folded and its head on a stone pillow. On other rocks were many Heermann's Gulls, and a few Western Gulls resting out of the wind. Many Cormorants apparently all the Farallon Cormorant were about in one place and three California Brown Pelicans came in to join them. Offshore was a great black mass of Dark-bodied Shearwaters. The view offshore was fine with the waves breaking on the rocks below.

Returned to town at 6:30 and dinner and then left at 5:00 P.M. via the Santa Fe.

The passage across to Point Richmond was a little rough but not unpleasant. Saw no California Murre.

Left Point Richmond at nine and went to bed at once.

July 21. Monday.

Arrived at Bakersfield this morning at 7:55 a.m. I checked my suitcase and then strolled over town. Ate breakfast and wired the office that I would work this week out of Glenville and to forward mail to Sacramento. Found that the stage of Glenville had gone on made arrangements with the driver to take me to Glenville for ten dollars. Loaded my baggage and left town at 9:30. Travelled north across the open plain where all vegetation was dry and brown. The thermometer stood at 102° + in Bakersfield. As we cut in toward the Sierras the country became more undulating and finally small oaks appeared on the hillsides. From Woody Post Office the climb became steeper and hillsides were covered with Chaparral.

Glenville lies at an altitude of about 3500 feet in a broken hilly country. The town consists of a hotel store and three or four houses.

I met Mr. Norman Baker, County agent for Kern County and Mr. James Wootton his assistant. These gentlemen were going up above Glenville and invited me to join them. This I did as it gave me a favorable opportunity to look over the country. We went first to Mariejo Ranch and then

back in as far as a Tungsten mine
around Cedar Creek Crossing, traveling in
a Ford.

Mr. Burton and Mr. Slocktin have been
working with ground Squirrels and told
me that in their experience they had known
no equal that had been poisoned in this
Specimens. Mr. Slocktin was especially well
informed and said that he had heard
of no report and that when traced
it down it was found unreliable. He
said that a good many rabbits were
killed, and I saw five Squirrels and
with a few lizards as well as Band-tailed
Pigeons.

The hillsides that we passed were
covered with a heavy Chaparral in
which I saw much Mountain Mahogany
Higher up we came into small Pine
Trees.

I saw a number of Sciurus aquilus and
collected one for a skeleton. A Cottontail
was common also and
Chipmunks were seen
The ground squirrels (Citellus beechyi fisheri)
were common all along. Many young were
seen.

I saw flocks of California quail
in fine plumage and other Columbids birds
are common here. Mountain quail and
Blue Grouse are reported above on the ridges.
The road led us back into the Condor
Grunhorn mountains. Slopes are steep and

Were covered with heavy brush. Returned to town at Sevey.

On the evening I met Mr. Eef Sallsman of our Bureau who is to have two Crews of men joining ground squirrels in here.

With Messrs Stockton, Barker, & Sallsman I attended a meeting of Farmers at the schoolhouse that was called to arrange Cooperative poisoning. Meeting lasted from 8 until 11.

Talked with D. Lawrence, Likely, J. Carver, Smith, Mattox and others. All were agreed that they had seen poisoned quail though all had spread poison in areas frequented by quail. They seemed to be of the opinion that the birds did not pick up the poisoned Barley that was used as bait. They said that at times a good many Doves and California Jays were killed.

Two men that I talked with Mr. N. Woods and Mr. Morrison thought that quail were killed though they admitted that they had seen none. They were able only to adduce the alleged decrease in quail as a basis for their belief.

July 30. Tuesday.

Was up this morning at 6:00 and had breakfast at 7:00. Prepared a few specimens and then walked over to the

Fulton Ranger Station. Mr. Fallman informed me that the first poisoning would be in the vicinity of the station so I went down along the Creek and located two coveys of quail one of some size. Another covey of about a dozen was found along the road just west of the station gate.

The stream bed here was grown with willow and cold clear water was running.

Returned to Fallmans camp about 9:30 and watched while they mixed some poison for use here. Mixed Barley is used as a carrier. The poison is mixed in a large light box that has a cover that can be locked.

After this was completed I went to Fallmans camp and we talked over the situation. Fallman stated that he had never found quail that had been poisoned but that he had heard from C. E. Jones the County Horticulturist of Shasta at Redding, Calif. that he had killed quail when using poison and what not but that this is Fallmans first season in this work and he has been working in the Northeastern corner of the State. He had found a good many dead Mourning Doves and Pinion Jays there.

I talked with the Ranger here and he knew of no poisoned Quail.

Returned to Glenwood at dinner with Mr. Fallman and found mail there for me

Worked in notes until noon, had dinner and then went again until two. After this I went out and explored the upper end of the property.

I found Coleman & Otis were engaged in spreading the poisoned grain. They rode along on horseback near each other and cast the grain along opposite runs, near the holes and about piles of rock frequented by the animals, taking care that the spread of it will be quite uniform & thick. The quantity of grain used was very small.

I worked up to two small springs at the boundary line. The stream bed was dry here though well grown with willows. I found two coveys of quail here one of a dozen the other of about 20. They were frequenting patches of rose and clumps of willows. When cover was dense. I spread poisoned grain in fair quantity in these places using about 1/4 pint.

Saw another covey on my way back. Climbed up through the oaks for a distance here but struck comparatively little of interest.

Returned to town shortly after six.

Very hot this afternoon. Wrote up notes in the evening.

Today I captured a number of

Membracids that were resting on weeds. Each was attended by two or three ants ( ) that seemed to be securing a secretion from the membracids. The ants touched the bug constantly with their antennae and applied their mouths to the sides of its body. I observed this in 6 or 8 instances.

Yesterday Mr. N. Bohn told me that in Bakersfield there was considerable complaint against both English Sparrows and Linnets in the War Gardens.

Here in Glenwood the Sparrows attack Beans.

Mr. Bohn also told me that last spring Linnets attacked a budding peach orchard and riddled it practically ruining the crop of a 60 acre orchard.

Cottontail (Sylvilagus auduboni) are common here near Glenwood. I saw six yesterday in a small area at the Ranger Station.

July 31, Wednesday.

Was up this morning at 5:15. Preserved two or three specimens that I had on hand and then put my notebooks in shape.

About nine I examined the area covered by poison yesterday at the Ranger Station carefully. Saw a ground squirrel that to me dragged a path and then suddenly stopped on its side and after a few convulsive movements die. Picked up another in a hole under rocks that had been dead for

time. Careful search about the two springs above the station failed to show any dead quail. About 75 quail ranging from half grown to adult were hanging near the clumps of willows. When I had spread the poison promptly I searched all through but could find no dead birds.

Looked around under the scattered oaks for other birds and picked up one California Jay. It had fallen from an oak and Jay had dropped on its breast with tail pointing up in the grass. The wings were folded closely to the sides.

In addition to this the Ranger Mr. Clark gave me one 8 day old chick that had been killed by poison at his barns.

Returned to town at noon and then completed my accounts for July and got them off in the mail. This took until three.

I went out then to the Ranger station again and worked there returning to town at six thirty.

At one place I have noted quail in the shelter of certain rose brush for three days. A flock of about 15 or 20 has been ranging there in a very restricted area. I poisoned this thoroughly using sufficient grain to place poison in all their runs and resting places.

Worked through some other territory

Statement of expenses. July 1-31, 1918.

Form 5, Frank M. Chapin	50.00
Form 4. July 1-31	96.77
Trans. requests	51.16
	197.93

Amount available	600.00
	197.93
Unexpended balance.	402.07

Est. expenditure for August. 175.00

at the ranger station and picked up one dead ground squirrel and a Mourning Dove under an oak. The dove lay on its breast with the head turned sideways underneath. Following this I made another careful search for dead, using the willows and then reporsomed thoroughly near the two springs at the upper end of the grounds. No dead were found this morning. Were still in traps. Following are notes on poisoned animals.

Ground Squirrel ♀ im, 52 grains barley in chuck pouch
" " ♂ im. left side 4 Right side 6 grains
" " " " 6 " " 17 "

These animals were immature but were fully grown.

♀ Gallus gallus 8 days old (Barred Plymouth Rock) 7 grains in crop, 3 whole grains and hulls & perhaps ten more in ventriculus. The whole grains had certainly been poisoned as the grain had the peculiar coat ~~of~~ in color of the treated barley. There is some doubt about the hulls as rolled barley is used for feed here. The heart was in systole. Organs all normal. Death was due to poison. The bird was examined carefully for lesions that might indicate disease but was wholly healthy. It was picked up dead in yard.

Zenaidura m. marginella Bd.
Bird had slight bloody stained exudate from mouth. Crop filled with gas. The stop

Contained. 28 entire grains of barley, also the Particulars were 1 whole and half of about 5 others. Thus this bird had been killed by 34-35 grains, heavily

Many other Mourning doves were seen feeding through here in areas which they must have secured poison but no dead ones were found I watched them closely but could detect none that were affected

Returned to town and received a telegram from the office, telephoned in as follows:

"get in touch immediately with Rice Growers Association at Sacramento. Nelson."

Sent out the following night letter by wire, telephoning it to White Rice Growers association Sacramento. Calif

Are you having serious damage by birds in rice at present. If so hurry or write me immediately at Glenn with giving particulars.

A. Wetmore.

Wrote up my notes in evening

August 1, Thursday

Took care of a few specimens this morning and then went over to the two spots where I had spread poison for quail. After a careful search I was unable to find any dead birds. Quail

were all about the poison. In one place where I had spread the barley in runs under bushes I was unable to see as much of it as lying on the ground. So that it had not been picked up. I shot one female quail (adult) at the poisoned area at the rangers station but found only wheat and weed seeds in crop and stomachs.

After noon I found that Birds were doing serious injury to ripening apples on one tree in an orchard at the edge of town. This orchard belonged to Mrs Brown. There was one tree of "June" apples that were ripening and on it about 25% of the apples had been damaged. The work was done in the main by House Finches of which at least 50 visited the tree. Ten or a dozen Black-headed Grosbeaks were about also and a few Bullock's Orioles and California Woodpeckers came down to feed at the injured apples. About 75% of the damage however was done by the House finches. I shot 24 birds 14 House finch, 6 Grosbeaks and two each of Orioles & Woodpeckers and kept their stomachs. In spite of these there may be no apple remains but all were shot in the act of eating apples.

Many of the apples were eaten until merely part of the core adhering to the stem remained. Others had holes pecked in the sides. I was told that similar attacks would be made on other trees as the apples ripened. Shooting had little or no effect upon the Homer Finches as they returned as fast as I could load and shoot. The majority of them were immature birds. Specimens of the apples were collected.

About 4 I made another round of the poisoned areas but could find one quail that had been killed.

Picked up one Mourning Dove newly dead and one of Hallenais men gave me a Band-tailed Pigeon that he had picked up. I saw where something had eaten another Mourning Dove that presumably had been killed by poison.

The Band-tailed Pigeon had 99 grains of poisoned barley in the crop and 28 partly digested in the gizzard.

The mourning dove had 2 grains in the crop and 15 in the gizzard.

In both these birds the jugular veins were greatly distended with blood. The flesh of the pectoral muscles was pale and the muscle fibers under the surface were contracted giving a curious convoluted roughened appearance.

Examined a ½ pound squirrel

that had 15 grains of poisoned Barley in the duck gizzards. I ~~examined~~ saw a number of others dead.

Buzzards are beginning to gather to feed on the flesh of the carcasses. A man told me that some have now been found dead.

Returned to town at 6:30.

Received the following telegram:

"Small number of ducks of local hatching beginning damage now. Birds in flight will begin to arrive late this month. No damage at this time only nominal.

Pacific Rice growers Association"

Wired the office as follows:

"Rice growers association at Sacramento say small numbers ducks of local hatching doing nominal damage at present. Migrant ducks will arrive late this month. Unless otherwise directed shall continue work on quail at present. Forward four hundred duxbury shells at once."

August 2, Friday.

Was out this morning at 6:30 but did not get into the field until 8:30. as I had some notes to work on.

Walked out toward the ranger station and made another search for quail but found none.

After this I went down the creek

south following its windings between the hills. Clumps of willows grew along the bed and oaks were scattered on the slopes above. Many birds were coming in to drink at one place where there was running water. I walked a considerable distance but found no dead birds. This area was poisoned yesterday and the day before and a number of dead ground squirrels were lying about.

After dinner I went over across the hills to the old Allen Ranch belonging to W. Lavers. This property lies in a small valley between the hills and has a spring that supplies running water for a short distance. I was told that there were quail here in numbers and located the birds but find it rather an unfavorable place for experiments in poisoning as the country is rough and broken and there is a considerable area where grain may range so that search for dead birds would be difficult.

Saw one coyote in here and numerous ground squirrels. Many birds, Nuttalls, Black-chinned Hummers and these were coming to water here in a shady gulch.

It is intensely hot in this hills in the sun but is fairly cool

and pleasant if one can rest in the shade. Very little however brings out copious perspiration. I find that I require a large amount of water.

Ants have been working on skeletons that I have had out and have been growing more numerous so that tonight I dusted them out. I believe that this is the secret of Harrings method of preparing bird skeletons. The skulls cleaned by ants have a peculiar greenish color that I have noticed in his specimens.

Retired early now by 9:30.

August 3, Saturday

Worked at my room this morning on notes & correspondence. At 10:30 went down and examined one covey of quail near town. There were no dead birds in the bushes and the covey seems as large as ever.

Returned to town and met Mr. James Stockton of the County Agents office at 11:30 We took a lunch and at 1 left at once going across to the Grenhorn mountains South east of town in his car. Climbed up about 2500 feet and then left the car and continued on foot. Up to the point where we left the car the steep slopes were covered with the usual chaparral of buckeyes and others shrubs with oaks. About here pines began to come in and I saw some fine ones with large cones and

tall straight trunks. There was an undergrowth of a flat leafed shrub like Live Oak also that in places was dense forming thickets difficult to penetrate. Large oaks formed an abundant growth with the pines scattered among them. As we continued to climb the pines became more common. The slopes were steep and climbing hard and in the heat I perspired profusely. The shade however was cool and pleasant. Near the summit of the ridge we came to a fine cold spring, with water at a temperature of 58° or lower.

Birds were fairly common and came in to drink at small water holes. Because of the dry season the gulches were dry and even creeks that normally ran all summer showed only bare stony beds. Save for the spring found high up the walls were filthy from the trampling of cattle. At long intervals we came to small springs in the ~~creek beds~~ gulches but found only one at which we could drink.

I saw a dozen or more fresh deer tracks on steep slopes. They were marked by deep cleavage of smaller about the size of a deer's track. Shelton claimed that if dogs in raising game slipped in their trails but that bucks never did.

Ground squirrels were common on

on the steep slopes down and I saw one of the two tree squirrels. Got a fine male of the latter for a skeleton. Dozen of stripped cones with found about the bases of some of the pines, probably the work of a smaller species of Sciurus from which were seen however.

I was much taken with the higher country even in spite of its steepness and regretted that I did not have time to camp here for a day or two. Looked in vain for White-headed Woodpecker, but was successful in securing and observing Mountain Quail of which I had come in search.

The afternoon's trip was rather fatiguing because of the heat but was pleasant and enjoyable. Returned to town at dark well loaded with specimens and with many notes.

Stickney states that woodpeckers (apparently Lewis's and the Californian from his description) do considerable damage in apple orchards in fall all through the foothill region here.

Saw some spotted squirrels (Citellus) in an area where grain had just been put out and saw a coyote carrying a dead squirrel.

August 4, Sunday.

Was up this morning at seven and put in most of the forenoon in caring for specimens secured yesterday and in straightening out some odds and ends.

After dinner I went over to the Robinson Station and made another examination for dead quail but as usual without result. Shot two adult male Valley Quail. One had 3 grains of poisoned barley in his crop and 3 more partly ground up in his gizzard. He showed no effect of the strychnine whatever but was alert and active as any. The second bird had eaten no barley. This is the first direct evidence I have had of quail taking barley.

Returned then to the apple orchard at town which I find belongs to Wilkes and watched there for an hour and a half. House finches came to the trees in considerable numbers. At times twenty or thirty were in it at once. Shot a number. A fair number of Black-headed Grosbeaks ate the apples and one or two Bullock's Orioles. Two California Jays came separately. One was suspicious and left at once on seeing me. Another ate for a short time and then I shot it. The House finches had been feeding on seeds but came in to roam themselves with bits of apple. Frequently I found the throat filled with pulp so that the œsophagus was well distended.

Remained in the orchard until six and then returned to the hotel.

Worked on notes in the evening.

August 5 Monday.

Was out at 5:00 this morning and went up to the Ranger Station. Secured some poisoned barley and spread it some in one place and a half quart in another. I have six flocks of quail under me. Am constantly observing and in all about 250 individuals. Besides these I have located as many more scattered about in the area that has been poisoned. So far I have failed to find any indication that they are affected by strychnine. The poison in the areas first found has now been well cleaned up so that I spread more in areas where the quail were using.

Following this I went on down Eden Creek through and in area that had been recently covered with poison. While watching some Mourning Doves on and dead went into a spasm from the effect of poison that I had fed and rolling over several times finally lay on its back. I supposed that it was dead and turned my attention to another. A minute later I went over to pick up the first bird and found it sitting up flapping its wings with some difficulty about 100 feet and alighted heavily on a dead oak limb 30 feet from the ground. Its wings continued to twitch for a short time after it alighted and the bird remained

crouched over for a short time. Then it straightened up and remained quiet for ten minutes only moving occasionally at frequent intervals. Finally it seemed to want to try out its wings to start. It threw them out at it finally and it flew two hundred feet obliquely without trouble. In a few minutes more it seemed to be entirely recovered and began to preen its feathers which were somewhat disarranged.

I followed the creek bed down nearly to town but finding the country rough and broken. I finally climbed up to one of the streets and returned to town by another route.

Saw 6 buzzards over town at one time. There are no indications of any having been killed through eating the poisoned grubbs.

Rabbits are said to be killed at times by poison but so far have seen no indication of this. Saw 8 or 10 cottontails this morning as an airy. Not has been poisoned.

Returned to town at a quarter of ten. Attended to some specimens and then went down into the Wilkie Orchard. Sat in the shade and wrote up my notes. It is hot and uncomfortable at the hotel in afternoon as there is no shade.

Kept watch of the birds that

Birds differ from Reptiles in their variety of calls & songs and their notes. Reptiles are notably a silent group of which birds in the house are the reverse. They constantly betray their presence by calls and the ornithologist becomes skilled in recognizing these and following up their different meanings.

(transcribed to separate sheet for filing)

Came in to the apples only a few 15. thu
hours I think. We must have orioles now
and did not return at once to each
visit. They spend a great deal over
certain apples. Usually from two to
a dozen will sit on the limb at one time
perch, and look around for a few
seconds and then dive out slowly thru
limbs or fly out to the ground suit
and begin to feed. They chatter and
call constantly.

Two California Jays came today, and
two or three California Woodpeckers. A
Male Western Flycatcher came in and
ate as did a male Downy Woodpecker.
A number of Blackbirded Crossbills
came and ate Bullock's Oriole. A
Nuttalls Woodpecker flew a out took
a bit immediately and left without
eating. The Calif. Woodpeckers fed by
hammering at the apples, presumably
knocking them down to the ground.

Last night it was actually
cold before morning and today
was much cooler all day too.

Returned to town at 6:15 P.M. Wrote
a few notes in evening.

August 6 / Tuesday

Was out this morning shortly after
six and found it cold and sharp.
Mourning Doves are coming in to feed
in a field about the hotel and I
went out and shot two. Missed one

easy shot.

After breakfast I found that the birds were in my drying skeletons again so cleaned them out. Went north to Cedar Creek and down it for a way looking over some of the open flats to gather side birds. Doves are abundant enough here but I find no more affected by them. Returned about noon and examined the areas that I trapped yesterday. There were quail tracks all about and much of the grain was gone. However I was able to find dead birds.

I shot Chili quail from separate coveys near here but I found no Starley in them.

Returned to town at one. Had a considerable number of birds to care for and worked on them. Afterwards I wrote up my notes

Aug. 7, Wednesday.

Cool and sharp last night so that I slept with a blanket and a quilt over me. Was out at 6:30 and was in the country before eight. The air was cool and bracing and the birds were active so that all are in full. About nine however it became very warm and continued thus until noon.

I went over to the Ranger station as usual. Rowells have now well persons ill here with I see very few now. Though they remain abundant in town most

Mr. Hill that have not as yet seen or found all my poisoned grain as cleaned up now but as usual I was able to find no dead quail. Three coveys of birds were flushed from the northern poisoned area. I shot one male here but found no barley in him.

I talked with Mr. Fraser this morning and he said that Mr. Hogan had used poisoned barley last fall at Ione as he put his crop in there and that he had control this spring and summer. But there are several good sized coveys of quail on his land all doing well. He told me that as a matter of fact there were more quail this fall than there were last. He also said that he had used 70 lbs of barley.

Returned to town at 12:30.

I was told by ranchers that it was now a common custom to add cyanide to the strychnine in mixing grain for squirrels. This is used at times in the proportion of 1/2 oz cyanide to 1 lb. strychnine. This would totally would kill anything that ate it.

Attended a meeting of ranchers in the evening. A number had had a poisoning poison but have found no dead quail. A few Mourning Doves have been killed and no new reported a Calif. Towhee

After dinner today I rested for a few minutes and then I went over to the old Allen place again. Sat in the shade near the spring for some time writing in my notes and waiting for a Nuttalls Woodpecker that comes here to water. Black-chinned Hummers came darting in at frequent intervals to hover over tiny pools and thrust their bills into the water through the floating growth of hemma. And ruby Titlarks were present constantly, flocking down to the edge of the brush and then hopping out over the stones to sip a few mouthfuls of water. One spent much time in hopping through shallow pools and picking out the caddis-fly larvae which it held in its feet while it pulled the cases apart in order to reach the insect. A Mourning Dove alighted over my head and surveyed the gulch without seeing me. After a few minutes thinking that the coast was clear it dropped down to the log near the water's edge and nothing betrayed my presence and the bird "froze" and remained motionless walking one minute for half an hour. The Nuttalls Woodpecker came in once to a tree nearby but passed on. A Chipmunk came in and scolded. Finally I heard a harsh rattle and my bird dropped in behind me and then I crossed to a tree opposite. A minute later and a load of lead brought it to the ground

This bird was one that I wanted to complete my series of alcoholic woodpeckers. Shot an adult female Gila woodpecker for a skeleton. Also collected a rabbit for the same purpose but shot it too badly. Pulled a downy head & it by mistake for the ears.

Mr. Norman Baker, County agent was here in morning.

Aug. 8, Thursday.

Was out early this morning and tried to get some toads to poison for use in experiments but none were available. Found a small amount of wheat at the mill at Bakersfield yesterday but could get no oats there.

Baker and I went over to the Kings station and put the poison in bottles around and collecting insects. Found one willow heavily infested with Diapida, a species that I have been looking for ever since I came west. Collected a good series of them.

We had dinner in camp with the Hillmans and then watched Hillman mix some poison. Had him poison the wheat for me and also some barley. That I might be certain that the poison used in experiments would be uniform with that spread for squirrels. Have now who have been putting out poison report a few dead ones and one skunk. Also a Bonaparte's

this I am certain is as that I shall send last a couple of days ago.

Returned to town at 4 PM and packed my outfit. Forwarded a package of specimens, one of insects and one of miscellaneous by mail. Have an express box of alcoholic material to send to Portersville.

Mr. B. P. Wood at the Hotel gave me some samples of Tungsten ore from the Mines about town. I should think I will keep them for Buddy Hemsworth. The Tungsten appears as Scheelite in white soft crystals in contact with Molybdenum, Manganese, Pyrite and in one case with iron pyrites. The last is a rare combination.

August 7, Friday.

Was up and had breakfast over before seven. Jim Cox engaging with Gracey Ives and such pictures among the birds. E. Tillman in charge of our work here. Came for me at 8:30 and loading my baggage in his car we left at once for Portersville. The road descended down among abrupt hills until finally I emerged in a barren rolling country with short, stiff Shorts, flies but in the main valley. Splitting out of the ordinary motif.

We had some tire trouble and did not reach Portersville in com-

At the Lyman Fire ... I ... forwarded some alcoholics by express and purchased a few things for my outfit.

We left Fremont and went to 30 miles to Three Rivers. Porterville is 37 miles from Glenville.

There were lemon and and orange groves all along with many figs and vines. All this area is very fertile to grain. Practically the entire region was cultivated. Wild sun flowers lined the road and I kept watch for Kelloggs Lawrence but without success.

Above Lemon Cove we came into the Canyon of the Kaweah River and followed it up to Three Rivers where the stream forked into three branches. Wm Grant was supposed to be camped here with a crew of men to poison squirrels but were unable to locate him. We went up the north fork four miles to Kaweah post office but could not find him.

Mr. C. W. Keller on the Keller Ranch here told me that he poisoned for squirrels constantly but that he ~~found~~ had never seen dead quail and that quail remained common on his place. He said that he had spread poison every month this year without any apparent effect on the number of birds. And he knew of no trouble among his neighbors.

On the middle fork I talked with T. H. Dean who said that he poisoned

constantly but that he knew of no decrease in the number of quail nor had he seen any dead birds. His neighbors likewise made no complaint. Returned to Three Rivers and then back up the river near the bridge and camped for the night. Supped in camp. Spread my bed in sand and found it very comfortable.

Travelled about 100 miles today.

The morning was cool and pleasant and there was no trouble from insect pests. I had a bath in the river at 6 o'clock and then turned in.

Aug. 10, Saturday.

Was up this morning at six. Had breakfast in camp. Campers there were sleeping this morning.

Broke camp about 5:30 and returned to Lemon Cove. Learned there that men was camped on the River (Kaweah) west of town. Went over there and finally located his camp.

Mr. Green has been working with poison grains for six years. He said that in all this experience he had never found any poisoned quail. On two occasions a poisoned bird had been reported to him but one of these on investigation proved to be shot. The other was not examined closely. The previous years what had been used in poisoning but without apparent effect. In his work he had covered many

area where quail were common but had noted no diminution in their numbers.

Two men working with him made similar statements.

They had just finished poisoning an area near Badger where quail were common without killing any of the birds. A number of California Jays were killed and a few Doves but nothing else.

I had planned to spend a day or two in this region but Grem was moving to near Three Rivers and it would be two or three days before he was settled and at work again so decided to leave.

Saw several coveys of quail today.

Had dinner at Grem's Camp.

Returned to Three Rivers and then went on to Exeter which is on the Railroad. Left Dillman and his car there and registered at the Exeter Hotel. Very hot here in the Valley.

Reached Exeter about 3 P.M.

This town is out in the open level country of the Valley. Attended to a few errands and then walked out west of town about three miles to the dry bed of a river. Figs and peach orchards and grain fields were on either side of the road. All of the land was cultivated. Many sunflowers fronted the roads.

The stream was bordered on either side by oaks and had its bed grown with large willows. The cotton from these was very white making it very dangerous.

I caught two bunches of Valley quail in here but other birds were not numerous.

Returned to town about 6:30.

After supper I walked around to a canning factory where men and girls were putting up fruit but was not allowed to go in as the factory was operating under government orders.

The Chinaberry (Melia azedarach) grows all through the valley here and is known as the umbrella tree. It is as common in yards as it is through the south. I notice that many of the berries dry and drop off by the returns. Eucalyptus are not as common as further north.

From present knowledge there is little doubt that the early opening of the dove season leads to the killing of many quail before the period for their killing is legally opened. I noted of this frequently in the past two weeks, and it is additional proof both and other evidence corroborative of it. It seems certain that a good many quail supposedly killed by hunters find their way into the cooking pot under the head of doves. The automobile is largely responsible

for the destruction of many of these birds out of seasons. On travelling in a car during the first few days I have seen many quail along the roadside within easy range. It is a simple matter for an unscrupulous hunter to take a couple of shots at them, climb a fence, secure his birds and be on his way before there is any possibility of his being apprehended. As cars are so abundant it is almost impossible to find out any culprits.

The note offers such proof by means of inquisition that during the hunting season it is easy to cover a large area, shooting but a number of coveys in a few hours time. Again with the increase in cars there is an increase in their use for camping and pleasure trips and in all of these trips a gun goes along. The thoughtless can easily secure a few quail while travelling or from coveys near camp to add to the camp menu.

From observations made it would seem that these have been the contributing causes for the decrease in number of quail and not the poisoning operations in rodent control as has been alleged.

Went to bed about midnight after it began to cool off.

Aug. 11, Sunday

The latter portion of the night last night was cool and pleasant and it was comfortable. This morning I was up at six and after some trouble got my baggage taken to the station. Left via Southern Pacific at 7:05 a.m. Arrived in Fresno at 10:55 and laid there until 11:30 waiting for another train. The afternoon was uneventful. The road passes up through the San Joaquin valley through a succession of prosperous looking towns. Until reaching Tracy it was hot and disagreeable in the afternoon but after reaching the Coast Range where the influence of the sea breeze was felt.

From Valley junction on the ride was pleasant. The track followed the bay shore giving views of the water. I had passed over this way in daylight before.

Reached San Francisco at 8:30 and registered at the Colonial Annex. Took a bath and went to bed at once.

August 12, Monday.

Was up this morning at 6:30. Ate breakfast and purchased two food bags to carry pinard grain safely, a Khaki shirt and some other personal supplies of which I was in need. Had considerable trouble in finding a shirt and finally had to

$3.50 for me. Also had work shoes half soled.

Called at the Fish & Game Commission at 9:30 and met Mr. J. S. Hunter & Earl Westerfield. These gentlemen told me that there is considerable agitation in regard to the depredations of wild ducks in rice. Rice growers are asking that the shooting season be opened September 1 in order to kill off the birds. Considerable pressure has been brought to bear in the matter. Geo. Neale warden at Sacramento will have information of value in the matter.

Talked with Mr. Hunter in regard to the open season for doves and he agreed with me that it was too early. Also stated that there were numerous violations of the quail law by dove hunters and automobile travellers. He made arrangements for me to carry on experiments on quail at the State Game Farm.

left San Francisco at 1:00 P.M. via S.P. arrived at Haywards, Calif at 2:10 P.M. A rig from the State Game Farm met me. I went first to the Express office and received a box containing duck shells and another of strychnine. No waybill had come for these and had to pay charges on them amounting to $1.88 before the agent would

deliver them. Last receive mail at the postoffice. A letter from Pac. Rice Growers Association at Sacramento saying that some damage was being done by ducks.

Reached the farm farm about four and made arrangements to stop there while carrying on experiments with poisoned grain on quail.

Caught up a dozen quail this evening to be used in these experiments.

The State farm is located a mile west of Hayward on level open country toward the bay. The country thereabout is fertile and is farmed though the land lies near sea level and the bay is in sight. The country is very open and there is no timber save for occasional lines of eucalypto along the roads. Cool and pleasant here with a strong ocean breeze.

Have quarters in an old tank house and am very comfortable. Mrs. Hicks who is in charge here at present was kindly good to board me.

August 13, Tuesday.

This morning I arranged some small cages and started a series of experiments at once. Have secured a number of shipping crates 2½ x 5 feet with two compartments. These have solid bottoms and are enclosed in wire. I put one bird in each compartment and covered the

tops so that the birds would have shelter and would consider themselves hidden. It took me about two hours to locate cages and move them to a secluded yards where the birds would not be disturbed. Started 8 experiments at 9:30 and looked at the birds at 11:00 which I was in at lunch a dog came through and wrecked the whole enterprise, releasing my stock of reserve birds, killing me. Fortunately only one bird in experiments was released but all the experiments were spoiled as the cages had been dragged around. Then I moved them all into some covered enclosures and started over again. Have started by placing poisoned wheat and barley for the birds to eat.

About a quarter of four I walked over town asked for mail and wired the office asking instructions in regard to the rice matter ~~and~~ also requested 10 transportation requests. Returned to the farm at five and looked over experiments.

Started experiment with ducks & poisoned barley using a female pintail.

August 14, Wednesday

Cool and sky overcast this morning. It is very pleasant and comfortable here at the island. There are a few mosquitoes but they do not bother much. The bay is in sight to the west and the low rolling hills of the coast range on the east. It is not a very good place for birds as there is little cover but so far I have had no time to look for them as yet.

I started several new experiments today along different lines. The quail that I am using are ranch bred birds and are accustomed to eating grain so do not care much for my proposed grain. So today I started in feeding individuals by means of a pair of tweezers holding them and giving the barley grain by grains. One quail took 78 grains without no apparent result. If digestion seems to be slow in these birds for this bird was fed at 9:00 a.m. and had the crop still ½ full at 7:00 p.m.

A fistful or 40 grains of pearled barley did almost at once.

I walked in to town for mail and some other errands ~~and back~~ in the afternoon and returned at once.

Spent the entire day with the quail including 4½ hours after supper working up notes in journal.

August 15, Thursday.

Was up this morning at six. Cool and cloudy with occasional sprinkles of rain. Spent the forenoon in working with the experiments on hand. I terminated all of them at 1:00 P.M. and cleaned up and packed my outfit. I sorted all of the quail that I have been using into one small inclosure. Mrs. Works has kindly consented to keep them here and look them over once each week for a week or 20 and report on their condition at the end of that time. This will serve to show whether they have suffered any injury or not. All appear strong, active and healthy now. One has eaten 130 grains of poisoned Barley another 125 grains.

Left the Agami farm at 3:30 and went in to Haywards. Attended to some business there and then went in to San Francisco.

Left Haywards at 10:15 P.M. Reached San Francisco at 7:00 A.M. in San Francisco. Was unable to get a room at the Colonial Annex so went to the Colonial at 650 Bush.

August 11th Friday.

Secured information first this morning by 'phone and by driving down town from Rialto. The California Fireworks Co., 249 Front St. are putting out a bomb at $3.60 per dozen. This is placed in a tube of fiber (rolled) embedded 6 or 8 inches in the ground and fired by a fuse. It makes a loud report and then explodes in the air.

The Rackliff Fireworks Co., 146 Davis St. put out a bomb at $5 per dozen. This is said to be loaded above but this style of mortar is superior. It is made of galvanized iron riveted and has a pointed end to facilitate driving it in the ground. This bomb is fired by a fuse and makes a loud report and leaves a cloud of smoke. The Manager of this company was much interested in the proposition and said that their Chemist Mr. Wilson would welcome any suggestion as to the make up of bombs. The Fish & Game Commission through Mr. Kimball has taken the matter and they are to arrange for a test of these bombs later. Orders for bombs have come in from Omaha and elsewhere

in the United States.

Called at the Fish and Game Commission but found Mr. Hunter and Mr. ~~Clark~~ both and Westerfield both out. Met Mr. Clark and expressed my appreciation of the courtesies accorded me at the same time. Met Mr. Kaufman of the Forest service at Willows Calif. He said that the Indians there complained of poisoned turkeys and grouse.

Left the hotel shortly after eleven, purchased a ticket to Sacramento and checked my baggage out. After lunch, crossed to the Valley and spent the afternoon at the Museum talked with Dr. Grinnell, Dewitt and Bryant. Looked up forms of ciselaria to be looked for in the Sacramento Valley and studied out differences between a tricolor and the Californicus-gubernator group. The former is long winged, the latter has a short rounded wing.

Bryant described a disease of the eyes in Parus various and another Japanese bird which is usually fatal. Does not affect other aviary birds. Causes watery eye and sloughing feathers. One case cured by Potassium permanganate wash.

Grinnell had received thanks for federal collecting permits but cannot

to Consider them as purely under hindrance of the collector.

Returned to the railroad mole at 5:10 in order to make the 5:30 train on the S.P. for Sacramento. Saw a flock of 30 mallards over Benicia. Extensive fairfields, marshes traversed. The region about Sacramento is very flat and arid.

Boarded Sacramento at 7:25. Registered at the Hotel Sacramento. Ruled for a time and went to bed.

August 17, Saturday.

Cool and pleasant here last night. I made a mistake in choice of restaurants this morning and had a rotten breakfast. Visited the office of the State Rodent Control Commission at 7:00 and met W.C. Jacobsen, Christiansen and A.C. Wilkins. Also Mr. Henke president of the State Horticultural Board. Received mail here and then went to the local office of the State Fish and Game Commission. Here met Mr. Frank Weyhort, president of the commission and heard his views on the situation regarding the ducks in the rice fields. After this I talked with Mr. Jesse Neal Chief Deputy and secured some valuable information on the situation. Mr. Neal has given the duck question great attention and to him is due the credit for devising the "duck" bombs. He told me good places at which to work

and arranged for me to go to Maxwell and meet Mr. Carpenter deputy warden and travel through the county with him.

Made an appointment with Mr. Merry Sec. Rice growers Association at Jone. Mr. Merry stated that their acreage this year would be around 130,000 acres. He had little definite information concerning damage by ducks to rice.

Met Mr. Davis a field agent of the association. Mr. Davis stated that some rice was beginning to head out and that he had seen ducks in the rice ponds the previous evening.

After this called on Jacobsen again. He said that he had found 50 dead quail and read me extracts from notes under him to the effect that quail were not affected. He told me however of finding 14 or 15 half grown turkeys dead and said that the Indians on the Modoc reservation complained of their turkeys being killed. Also told me of young Pat Howard that they kept in camp and that if they neglected to wash their hands free of strychnine before finding the birds that it was immediately affected and went through all sorts of contortions but always recovered. He said that he and Pat both

Recent claims of damage to rice by birds.

H. E. Stephens – Richvale, Calif.
lost 25 acres last year.

"From letter of C. K. Adams, J. Biggs Cereal Field Station, Bureau Plant Industry, U. S. Dept. Agr. Dec. 7, 1917.

"The first attempt to grow rice in California was made near Biggs in 1908 by Mr. William Grant and Mr. W. W. Mackie. The Plantings demonstrated that there was a possibility of growing rice in California and the Dept. of Agr. became interested. The Dept. inaugurated tests near Biggs in the spring of 1908, growing some 300 varieties and testing various cultural methods. Experimental work was continued during 1910-11. The first commercial crop was grown in 1912 and consisted of 1100 acres. The results of the various plantings were successful and the acreage increased by years as follows: 1913 6,000 acres; 1914 16,000 acres; 1915, 32000 acres; 1916, 65,000 acres and in 1917, 93,000 acres."

Mr. Ernest C. Parks, Sec. Rice growers association, Willows, Calif.

Mr. J. N. Stephens, Pres. Pacific Rice growers, Inc., Sacramento.

H. O. Carlson, Vice-Pres., "

had run off a lot in handling strychnine in quantity [illegible] was subject to twitching.

Put in the rest of the afternoon in going over a lot of clippings and letters concerning the [illegible] birds in the rice fields, borrowed from the Game Commission. Called on Commissioner Hewbert at five and returned this file.

Read in the library for an hour, looking over Evans, Nuttall, etc.

Letter to Jeffers wrote a few urgent correspondence and reports until 11:20 P.M.

Aug. 18, Sunday.

Woke up this morning at seven. Cool and pleasant again. Took a train on the S.P. at 9:35 a.m. for Maxwell. The road led up through a level valley with the coast range in sight to the west. At one place we passed through a large planting of Eucalypts all small. [illegible]

Reached Maxwell at 12:20 and went to an old hotel.

About two we met Warden S. H. Carpenter and with Mr. Beamer Hamblin drove out to look at some rice. The area visited lay between Maxwell and the Sacramento River. I examined three fields of rice in which the grain was forming into the milk. In both the fields and were still commencing

I saw no evidence of damage by birds in a limited area of grain examined and Mr. Hardin also stated that there was no damage at present though he and others wanted to start shooting ducks & rail if and drive out local birds before they did cause harm.

Mr. Chatfield whom I met also prejudiced against ducks and wanted to start in shooting them. He admitted that there was no damage at present. I questioned him regarding his losses last year and he admitted that this was his first year in the business so that his complaints as yet are without basis. Saw no flock

I saw one flock of Brewer's Blackbirds feeding at the border of a rice field. One standing in the road at the border of the field further advanced in growth of head, also saw two or three Virginia Rails calling in the main road. These were unseen and unmolested as the rice men thought in all probability they are now eating rice, a circumstance that gave me a great smile.

At one spot in the Sacramento area were about 400 Pintails a few Coots and Mallards, a few Pintails were seen flying also

The Rice fields are all flooded now and the storks are ravening full.

Returned to town at 4:30 and talked with Mr. Carpenter until 6.00 arranging a plan of work.

Worked until supper after supper. It was hot today but not unbearable.

Mr. S.J. Carpenter told me that the Squirrels were poisoned in the coast ranges west of here two years ago and that now there are very few of the animals left. He stated that this year he had noted a considerable increase among the Mountain and Valley Quail, which of course have held about the same level of abundance. This brings up the question again of whether or not ground Squirrels break up birds nests by taking the eggs. If so with the eradication of the Squirrels quail should increase. Stockton of Kern County asserted that they did rob nests. Mr. Reynolds said that ranchers told him that ground squirrels carried off hens eggs and young chickens.

He added that he had never no instance of quail being poisoned by squirrel poison nor had he heard of any.

August 19. Monday.

Was up this morning before seven and got my outfit in shape. Mr. S.J.S. Carpenter came for me with his car about 8:30 and we drove east of Maxwell. The morning was cool with the air clear

about noon it became quite warm and the afternoon was hot.

We went first to the lower end of the Harlem (& others) tract examined yesterday afternoon. I saw one field there in which rice had been grown for the third year and in which the land had played out to such an extent that there was hardly any stand of grain at all and it would hardly pay to cut.

On the opposite side from this was a pond and a catching drainage from the fields above. Beyond it were rice fields & many of them with considerable areas of open water where rice had not grown. On these open areas and in the pond were between 700 and 800 ducks. The majority of them were Pintails but a few Mallards, green-winged and Cinnamon teal were sprinkled among them. The majority of the Pintails probably over 98% of them were drakes all in full eclipse plumage. A few were swimming in the water but the majority of the birds were resting on the levees or on barren open spots where they stood or sat preening, sleeping and resting. At intervals small flocks of ten to 50 came in from the east, perhaps from feeding grounds in the grain

fields and swung in to join the
others. Small flocks were flushed
near here from fields in the rice
itself.

The rice here was all less advanced
in growth than that seen yesterday
and showed no heads.

A few Yellow-headed and Brewers
Blackbirds and about 50 coots
were noticed here also.

From here we drove across
to Colusa and from then south for
two miles. Visited a slough
here but found no ducks in it.

Did not collected my first
Yellow-billed Magpies.

Returned to Colusa for dinner.
This is a pretty little town of
2000 inhabitants or more.

After this we drove south to
a tract of rice owned by J. Kenna.
This section was not yet heading.
South of it was another large
area where rice was just sprouting.
It was said to be late because of
lack of water.

There was a large flock of 500 or
Tricolored Blackbirds here and a slough.
No ducks here. A few small flocks of
Agelaius tricolor observed all along here
and five were shot from one truck.
Males & females were together.

Returned to Wilbur and

Examined a small rice area north of that town. Grain was not yet headed and I saw no birds in it. A small tract immediately South of Maxwell in the same stage of growth.

I saw no evidence of damage by birds in rice today.

Met Mr. L. Bockfeldt County Horticultural Commissioner of Colusa County in Colusa and talked with him regarding damage to grain in regard to poison. He had known of ~~them~~ none being killed. Mr. A. Poyer said that he had spread poison for 12 years without finding dead birds.

Returned to Maxwell at 4:30 & cared for specimens.

Wrote up notes in evening.

August 20, Tuesday.

A Cool North breeze this morning that lasted until noon.

Mixed up more poison and finished my writing before leaving town.

Mr. Farquhar came for me at a quarter past eight and we drove north through to Willows, Norman Island remaining to the pumping station of the West Side Sacramento Valley Irrigation Company and then returned through Hamilton City, Orland and Artois to Willows and then to Maxwell.

Drove 104 miles and had dinner
in Upsilows. Paid seventy cents for
about 20 grown chickens at Beaufortin
this trip.

Between Blaxwell and [illegible]
in a small number of hills [illegible]
some [illegible] and [illegible] to be
but [illegible] in which to hide our
showing. Saw no game save this
nice deer enough around to spoil
entire day's duck.

Called at the Ellis Ranch and
heard some complaint [illegible]
that could get no other [illegible]
from me. The husband was gone
and the foreman was in the
hills where I could not get at
him. Have several shell boxes scattered around.
Ordered that they had been shooting
the neighbor's ducks. Returned
that way in the evening and
found that the foreman was in
Willows. The men said that ducks
were coming in to the hills. The
most satisfied of them said that
the ducks were doing no damage but
there others had complaints but
gave nothing worth while.

Returned from here a mile south
to the Spalding Ranch where Mrs.
E. Below is in charge. Mr. Below was
away but I talked with Mrs

G. E. Bungey. He said that ducks were doing no damage in the rice at present. But claimed considerable loss last year. Birds began to harm the grain in the middle of September and trouble continued from then on.

Ducks from two years used against the birds with success but shooting with shotguns was not a success. Could get no actual estimate of damage save that the ducks were working in the rice constantly and that in harvest they had come in and eaten up 3 or 4 acres of grain in one place. Contention was made that flocks of ducks in alighting in the rice shattered much grain with their wings.

The hearing here seemed to be that there were too many ducks and that they need thinning out. Mr. Bungey could make [illegible] conflict the grain eaten by the birds on the fields after harvest as he said that was valuable for [illegible] and poultry! This is certainly carrying the matter far. He also said that ducks and dogs destroyed most valuable game for sport. Claimed that ducks were at present eating down grama grass that he was irrigating for sheep as fast as it grew. Their last contention

Ark merely samples of wheat &
bear and are likely to be overlap-
ping from here we crossed to the
project owned by the Princeton Rice
Company from W. J. Parsons & Co
Los Angeles — Mr. J. A. Mc Mc
J. V. Baird was president of the latter
company and a very likely man.
He said that the present crop of
rice was the [illegible] they had had
they were having no damage
by birds. They had 1500 acres in
rice and said that they would
be cutting by Sept. 20. Mr. Baird
seemed to have certainly known
of last year past as said that
fifty was from $8 to $1000. He was in
favor of an early open season on
the birds but was against them
he learned that it would open
Oct. 16. Believed Oct. 1 would be
a better date. I asked him if he
would permit hunters on his
rice he said yes but hesitated when
I told him if so they might do.
He had not considered that the
season would have to be open so
that the birds now resting in
the marshes would be harried and
possibly driven to the rice fields.
He had not heard of duck [illegible]
and was much interested in
talk of this here he seems to think

ducks too numerous.

This is round rice in this place and [illegible] got sick of saw already when Akaki was sowing and Kyling out the grain.

[illegible] here I saw one field that had been planted [illegible] for four years and [illegible] would not be worth cutting as it was heavily [illegible] to grass.

Near Nowgaon I saw about 400 Storks that had dropped in in small flocks in some fields on Bassein Road. Others came in the afternoon [illegible] and the birds rested here for an hour and then crossed to [illegible] in the rice fields where the rice was [illegible] thin and not yet heading. Here I watched them swimming about apparently picking up insects in the water. At night I saw a man shooting these birds but though [illegible] was doing so he was unsuccessful.

The next rice project visited was the Cross Project [illegible] and talked there with [illegible] K. Akuta - Manager of the Pacific Rice Company (Glenn, Calif.) This man said that he had been experimenting with rice here for 10 or 11 years and seemed to know a great deal about it. At present he had 2000

acres in much of which was heading and was in the milk. Ducks were in some of the fields but were doing no damage.

He explained that the birds were attracted by frogs & fish in water in the rice fields. They ~~fished~~ in them. He said that the birds would not come in daylight in the heavy rain when there was a good stand. He said that he was watching his rice and was cutting off the water so as to drain fields to dry up the pools and ponds where these ducks congregate because of lack of water. He was also going to try hanging lanterns on posts at night as ducks will not feed on a ~~dark~~ night. He did not seem to consider the ducks a serious menace. Said that they had no trouble with birds in Japan. That their rice was planted in such a way that there were no open pools but a even stand everywhere and that ducks were few in number. He said that shooting was not very successful.

Saw scattered flocks of five hundred or two Blackbirds today at the borders of a field. Of course

At 7 miles west was a Grackle and the rest Ricebirds Blackbirds the main where they were was not yet headed.

Passed the Degarmey to Fern Lodge and found it a large Colonial Estate with Cottonwoods and Sycamores. The water was clear.

Returned to Fern at 6:40 P.M.

This evening I talked with F. Beckus who is farming rice west of Maxwell. Various men have about 1000 acres of rice about 40 miles west of town but have as yet experienced no trouble. They are out of the main region frequented by the birds. Rice has been grown out here for two years. They have had no trouble from Blackbirds.

August 21, Wednesday

Talked this morning with W. C. Baber who with Haskins a Hindu has about 1000 acres in rice east of Maxwell near Hardens fields. He said that they were expecting serious damage as the birds were using in their grain considerably. Some of their grain was heading out others fields were later.

talked also with Mr Kim a Korean who has 1000 acres of rice northeast of Maxwell. He said that some of the grain was in the milk and quite the farmers that ducks were doing him damage. He told me however that at present it was not possible to get in to his place as the roads were under water and impassible. Damage was not so slight and he did not believe that he meant exactly what he said.

About 1:00 P.M. we drove north to Mr Ellis ranch and talked with the Manager Mr E.C. Bedford. He said that he thought the ducks were doing a little damage in his grain fields but not much. He had considerable trouble last year. We went out through one field where in one of the fields from the west and walked half a mile through his area of the checks. The grain here was not yet headed and the stand was so thin that it will amount to very little in any case. Large areas had no stand of rice with considerable ponds of open water so that the whole is an unattractive area to ducks. Two thirds of the

grain here however would not be worth harvesting in my estimation. At dark this p.m. I saw mallards and a few Pintails in here was told that the birds came in here last evening. There is nothing serious here.

Returned to this to Maxwell and had dinner.

Put in a long distance call for Mr. Geo. Neale in Sacramento and told him that I was ready to proceed to Dixon tonight.

Went east thru Maxwell on east & west road and crossed the Slough. Know as the Stronghold. There is a low area here running north and south that is two miles wide and 15 miles or more long that forms a natural Highway for water birds. Most of the complaints come from this area and the Lo and behold area. Drove a little bit & found him following the road across this slough. I picked up two coots and a Sora Rail that had struck the wires. So nice in them. Also noted a Western Sandpiper and a Red billed Avocet.

Examined a nice area north of here. Much of the grain is late but one or two fields were beginning to head.

fields in here at present.
At the Cement bridge east of Maxwell
about 200 Pintails and a dozen
Coots were in & around and
along it.

Returning then to the farm of
N. S. Cook I found the owner feeding the
ducks who were eating his rice which
was in head but I admitted that
he had not been down out to see.

On these fields I found about
500 Tricolored Blackbirds I could
not get at them to shoot any
because of water. This (and bordered
the Large slough and many
flocks of Redwings apparently had
been feeding here on tules, cattails
and other growth offered them
shelter and perches.

Near the Conway bridge were
about ~~500~~ 1000 Pintails banked
up resting in the fields. I watched
them for 1 and half between 4:30 and
5:30 but there was little or
no movement among them.

Returning to Maxwell for supper
and then kept at once with Mrs.
B. Harden for this fields east of town.
Remained in the decoys here from
7 until dark when Mr. Harden
returned for me.

Soon after I reached these
ducks began to move and for

an hour then was considerably light. The majority of the Birds of Game in from the coast and south and circled out around over the rice fields. ~~and~~ ~~then~~ Then came in in flocks of from ten to hundred or more. The large flocks broke up at once into smaller bunches which dropped in in small flocks. Many remained far west and then north finally returning to alight right at hand.

A large open pond in which there was no rice attracted many but these birds were simply resting and not feeding.

Small bands were scattered all through the feeding rice but so far as my observation went were feeding in the open water by tipping and immersing the head.

I estimated that 2500 passed in view ~~which~~ of which 95% were Pintails. At least 2 shot at Spoonbill as it came over, and a few ~~but~~ but lost the latter. The duck shot had eaten insects & grass seed and but no rice.

The evening was warm and close in the humid air of the rice fields but the view was beautiful and birds were in sight everywhere

Herons, ducks and ~~other~~ shore birds were abundant while a marsh Hawk and many fish Swallows were swooping in the air.

At my first shot the birds all left the open water near and did not return while I was there.

August 22, Thursday

Was up at 6:30 this morning. Attended to notes, etc.

The afternoon shot last night had calm so nice. Stomach was filled with grass seeds & insect remains.

Packed my outfit and left for home this morning at 10:00 a.m. in motor with Mr. Patterson.

Shot foot agent Kirby checked my chest for me and sent it ground in the railroad so that I had no trouble with it.

Travelled east of Maxwell again to Estancia. About 500 strings seen lying in the length of the Cement Bridge. and 400 to 500 Lesser tricolor birds in here.

Curious if roosting near this Cement bridge and shot by airplane along the entire length and will certainly be found attacked by ducks. As noted above about two strings are lying in here now and others coming & are coming into this country. The ducks will undoubtedly be a serious menace in the rice this fall

at present. Early rice is only coming into the milk and does not seem to be attractive to ducks, though these birds are working in the rice fields for the abundant aquatic life around the ends of the water boxes. Grain (Rice mill grain to harden) 4 grains (Ref. 10 oz.)

At present the west side there are about 2500 ducks in the Marden area, 500 at the cement bridge, 1200 at Norman and 1000 above Ellis or 5200 in all, mostly all sprigs.

A duck killed last night by striking a wire was found in the road. Stomach contained a dragonfly and gravel.

Drove from Colusa across to Sutter City then to Yuba City and Marysville. The last two towns are separated only by the Feather river. Marysville is surrounded by 20 foot levees to hold out flood water from the Feather and Yuba Rivers.

Had dinner in Marysville and then drove north 11 miles to Live Oak. Reached Live Oak at 4:30 and immediately got in touch with Earl Ricketts, Deputy game warden. After talking with him decided to go at once this evening to the Sing and Cooper property to observe what birds were coming in.

Secured quarters at a hotel (the Park) and attended to a few errands.

half hour at 6:30 and drove to the Cooper place. Met Mr. Cooper and Mr. W. H. Mr. Cooper said that two years ago ducks came in to his rice and did about $6000 damage. It turned out that this rice had been sowed in alkali land and that it came up only in patches with many spots of open water between. That it was attractive to ducks. Last year he tried out the bombs on ducks with marked success. Bombs were used for two weeks and damage was nil. In all about 40 dozen bombs were used at $5 per dozen.

This year they were many more ducks about than last year. The birds began to come in about August 10 and already were working in the rice doing no damage. Mr. Cooper thought that damage would begin in 10 days or two weeks when grain was further advanced. He believed that the birds ate the grain when it was just in the milk. Mr. Wall thought that they did not take it until it was further advanced. Cooper already had bombs ordered for use on the birds.

Below his place was an area in which water was draining from the rice fields. This field had been sown

to rice but had failed to grow because of alkali in the soil. Ducks mainly Pintails were coming in this steadily until dark. They came from the south, two or three at a time or in bunches numbering up to 100. Before we left between 1500 and 2000 had gathered on one narrow strip and were fighting with a great gabbling and quacking. Others were coming in by moonlight when we left.

Very hot and close this evening.

August 23, Friday

Was up this morning at 6:30 and left town in Ricketts car at a quarter to eight. Cool and pleasant this morning but very hot during the day.

Drove first to the Cottrell Ranch west of town. A considerable bank of duck was lying in the field where the birds were observed last night. They were resting quietly here and occasionally small bunches rose and went elsewhere. Later I drove them up and estimated their number at 2500. Practically all were mal Pintails. The birds were not alarmed and got up as I approached within 100 yards only a few flying at a time. The area where they were lying was grown with grass that was shocking with scattered clumps of tender rice

at one side. I examined this carefully but could find no trace of duck damage in it. Mr. Cooper accompanied me.

This field was the early variety known as 1600. I scattered clumps through it about knee high on which all of the grains were in the milk or even further advanced. Small flocks of Bronzed and Purple Grackles were working in there jamming the grains and pressing out the milk. I observed the birds feeding and shot one of each species that I had the milk in the throat and the bill and feathers surrounding it covered with the dried starchy matter from the grain. The terminal spikes in each head were those attacked. When the grain was in the dough the glume was often broken but in the milk stage the kernels were simply squirted. The milk that exuded dried in the open glumes giving these heads a whitish appearance that was visible for some distance. I collected a sample of this work.

A few Pintails were coming in to ponds adjoining other fields. Mr. Cooper said that he would start his boys herding the blackbirds and that he was going to move boards against the ducks as soon as his supply came.

Next night I had a shooting that indicated that some one was after the ducks

[illegible] Damage was limited but as yet but promised to be more extensive The [illegible] was done by a flock of about 100-150 birds that may have been hatched locally.

From here we returned to [illegible] and then drove south to Gridley.

Met Mr. J. W. Grant who claimed to have suffered much damage in other years from ducks. He said that he had been in the rice business for 5 years. He stated that the ducks came on at this season to feed on the seeds of the grasses growing in the rice and that as the birds came in in great flocks they trampled and beat down large areas of rice in doing this. He believed that shooting was preferable to bombing and said that last year he had driven the birds out by shooting with blank powder in three days time. He claimed that it was useless to kill birds from the flocks in order to frighten the others successfully. He asked for a special license to rice growers to allow them to kill ducks. He claimed that ducks were working in his rice now. On the afternoon we returned and he accompanied us to his place 11 miles west of Gridley and we were told there that flocks were not as yet working in his fields

through it was alleged that they were damaging his neighbors. His foreman Mr. George Thompson seemed rabbit and said that flocks had much damage by breaking the rice down and trampling it to the ground. That flocks of Pintails came in and alighted in the lowest stands of rice where there was no open water. These men Textura fully believe to the damage done by blackbirds but still made the complaint against it seemed to consider this part of the game. They were herding the birds so that they could get to this purpose used 22 rifle shooting hollow point long rifle cartridges. These were said to make more noise than the solid point ones and frighten the birds better. They said that if they ejected scaffolds 12 or 15 feet high overlooking the fields and shot into the flocks of birds as they were about to alight causing them to arise. At intervals it was necessary to go out and shoot a few with a shot gun in order to keep them frightened. This watch tower method was a great saving in that it saved much walking.

Had dinner in Gridley.

Drove north thru to the U.S. rice experiment station at Biggs about 20 miles. There met Mr. Jones in charge of the station. Mr. E. Adams who was in

on this work for a number of years has resigned and is farming Rice Commercially. Mr. Jones has been here such a short time that he was unable to give much information. We accompanied by in a search for Mr. Adams but we were unable to locate him.

Met Mr. C. A. Lindberg who was in partnership with Mr. Adams at one ranch. Mr Lindberg believed that the rice growers should have the privilege of shooting the ducks out. He said that he had had little trouble last year. According to him the birds come in the Jim Peds and in the rice and work out to the margins of them. He said that the birds attacked the grain in the milk taking a swath every night that was marked by the white milk kind on the plumes. The birds pull the grain down and take it straight thru. I don't believe this as I think that ducks would eat them and all.

He was aware of the damage by blackbirds and said that it was necessary to herd them constantly.

Damage was done last year to McMahon and the Wedgeland Company at Richvale this district and the one at Gridley is one from which the most serious complaint has come.

Returned to Gridley and then went out to grain Place

Here I talked with Jim King since I knew him as he gave me considerable shot over. He alleged that ducks were doing him damage but though he admitted that he had not been on the field in a month and that the birds had just come in. He based his statement on the word of an ignorant water tender who yesterday had seen "milling" of ducks in the field. They claimed that the spings came in and alighted in heavy bird swallowing it down.

This same King said that tomorrow he had to vaccinate a herd of 250 head of cattle as anthrax had broken out among them. He seemed calm and undisturbed about this though excited about the alleged depredations of the ducks. He stood in favor of shooting the birds ~~out~~ but ~~not this~~ and thought that if it was desired to use birds that they should be furnished free of charge.

We ~~did~~ out here until 7:30 and saw a small flight of spings, perhaps 200 birds circling about over the fields.

It is for a very few fields the rice fields here are foul with grass and cattails. In a great many of them it was impossible to see the rice from the road because of a dense stand of grass. This is shading water and judging by an abundant food

for ducks.
Had supper in Gridley. Returned to hotel at 9:00 P.M.

August 24 Saturday.

This morning we drove west and examined the country along the Butte Slough to see what conditions were among ducks there.

Met H.C. Babcock who is farming extensively in rice on the tract below Marysville. He said that there was no trouble with ducks there as yet. In his opinion it will be three weeks before they work in the grain at all. He does not believe that ducks will eat rice in the milk nor does he think that they will drop in in flocks in heavy stands of rice they come in however to open places in the grain.

Gentleman with him says that the birds took 6 or 8 acres of rice for him last year. Claimed that birds did damage by alighting and sliding along the water surface breaking down much grain.

At the gun clubs on Butte Sloughs we found that water draining from the rice fields was coming in on the dry flats, a good thing as other areas which that usually held water were dry. This gives the birds a resting place outside the rice fields. Between 8,000 and 10,000 Pintails were gathered in here

in a small area. Most of them were young birds. The majority of these ducks came in while we were there. They swung in in long lines from the north and for a time the air was filled with them for over a mile.

Another pond above here contained 1200 Pintails.

This last pond was below the King ranch and I went in here and examined the whole lower end of the field where it was claimed that ducks were doing damage. The stand of rice here was very thin and contained a great deal of grass in fact there was far too much grass as rice. The whole was so poor that ducks could alight in it anywhere. Mallards and Pintail were scattered through it in small numbers and I saw [illegible] much evidence of them along levees and ducks through the fields. The water surface was covered with floating grass seeds which were attracting the ducks. I shot a Mallard and a Pintail here and found the stomachs filled with grass seeds but with no trace of rice. There was no evidence of the ducks "wallowing" down the rice as had been claimed and as a matter of fact it was impossible to tell where the ducks had been in the grain save by the tracks and droppings of the ducks. We tried throwing a dead duck as hard as we could

through the stand I again but found it impossible to break down any of it.

By this time it was past noon so we (Carpenter, Ricketts and I) returned to Gridley and had dinner.

I chatted with A. W. Grant again but did not get much out of him.

Returned to Live Oak, had supper and then went out to the Confair plain west of town to observe the actions of some bombs.

The bombs are fired from tubes set in the ground at each fire. They go off with a loud report and throw the inner bomb 70 to 90 yards in the air. This then explodes with a loud report. Only part of the shots were fired when we started but they left at once. Other small bunches came in for a time but were driven out. At dark the birds had ceased flying and there were none about. Probably it is better to start shooting about dusk. Projectiles would be better if it were possible to throw them further than 80 yards. These bombs came from the Calif. Fireworks company.

Sunday Aug. 25.

Cool and pleasant this morning. Saw Mr. Cooper and he said that ducks were back in numbers this morning. Probably due to the moonlight nights we are having now. Wrote and read today but did not go out to ...

Wired the office this morning concerning work in State of Washington.

Extremely hot today.

Monday August 26.

Cleaned up outfit this morning and packed a small box of skins & Skeletons, one package of plants and some alcoholics, and forwarded them to the office. Expected an answer to my wire of yesterday but received none all day.

Spent afternoon attended to some correspondence and worked on skins.

Talked with Mr. Cooper and he said that he had been shooting the birds out with bombs night and morning and that the boys had reported a smaller number of ducks this morning.

At 6:30 P.M. Ricketts and I drove out to a point on the Butte a mile west of Corbin and lay there until dark watching the movements of the birds. Six or eight small bunches of Pintails came in from the south, swung over the rice fields and then mounting passed on to the northward toward Butte Creek. Two single Mallards

alighted among the rosin weeds
to show us but the other ducks all passed
on. At last we moved up nearer
the pools and saw there were four
ducks & 4 or 5 pigs swimming in one
of the pools but could not tell whether
they alighted or not.
Apparently the bombing is proving a
success here.
Returned to town at 4:15.
Mosquitoes very bad in the county here.

Tuesday August 27.

Received a telegram from office
~~Helena~~ approving trip to the State of
Washington to investigate Crow damage
in Almonds if road situation permitted.
Packed up and left for Sacramento
via the Sacramento Northern at 10:35.
Reached Sacramento at 12:40 P.M.
Called at the office of the Pacific
Rice Growers Association and talked
with Mr. Merry. He told me that
Mr. B. F. Turman of Willows reported
that ducks had destroyed 50 acres
of rice for him and were still working.
Gave them a little of introduction to Fish
Talked with Jacobson also. Most of
the offices are closed as this is
election day and a holiday.
Left Sacramento 4:25 P.M. via the
S. Kleinhell, Antioch and Easton. This electric
line took me down through the
Coast Range above Mt. Kleinhell and the

A few more pretty places, one in which could I pay for clothing. Returned at San Francisco at 8:15 P.M. Registered at the Colonial Annex.
Letter in San Francisco.

Aug. 28, Wednesday.

Visited the Pacific Rolling Co first this morning. Had talk with Mr Combs. Ordered 3 dozen of their ordinary bombs and one half dozen to be made special. Then went to the office of the Chemical Fire Engine Co and had talk with Mr Frank Chase and Mr Lange Jr. Mortar.

Went next to the California Fireworks Company and continued from about ordering out directions with their Mr Combs. Also ordered a dozen bombs to be made special to throw patches of smoke more smoke than their present output. They told me that they had no idea for over 200 dozen bombs.

Saw next Mr Hunter of the Fish and Game Commission.

This concluded the forenoon.

At twelve went to the California Academy and saw Dr. Evermann.

Returned to town and made a few purchases. At 3:30 crossed to Berkeley reaching the museum there at 4:30. Professor looked for Mr Peters, but he is absent in Texas. Then went to the office but could not find Mr. Campbell. Left on the 6:20 train

Oakland to Sacramento.
Reached Sacramento at 10:05.
Registered at the Land [illegible]

Aug 29. Thursday.

Hot and close last evening but cooler during the night so that I had a good nights rest.

Called this morning at Secretaries office but found that he was in San Francisco.

Went next to the Fish & Game Commission. Mr. Neale was out but I talked with Commissioner Herbert for over an hour.

The Sacramento Bee Reporter called me up here and informed me that the Bee was fighting the fish and game commission. I told him nothing new. That I had been working in the rice fields but that I had no definite statement to make. Spent the entire afternoon in working up official correspondence.

Extremely hot this afternoon.

Left for Willows via S.P. at 7:00 P.M. Arrived Willows 10:15 P.M. Registered at the Crawford Hotel.

Extremely hot night. I went to bed at 11:15 but it was so close that I did not rest well.

August 30, Friday.

It was snowing heavily early this morning so that I slept through until 7:00

After breakfast I managed to get in touch with Mr B. J. Hayman. He [illegible] that [illegible] and killing off the chicks as he says that they do the rice ground great damage. He asked him [illegible] 250 acres which it was alleged the birds had already taken and he was rather indefinite about the matter. He said that there was no need going out to look at that as the birds was not on it, and the grain was gone anyway. As I was feeling indisposed he decided to take me out. His land lies east and a little south of Willows. He has about 500 acres in rice. Water failed to reach nearly 100 acres so that only a small part of the grain had germinated and been [illegible] by the birds. This land showing a series of checks at the edge of the field was bare. Scattered stalks, which occurred over this and the [illegible] grain however could not be considered a stand in any sense of the word and would never have been cut. On many places the grain stalks were just sprouting

and saw that one to the "boot" had been cut off cleanly as though done with clippers, part eaten and the discarded ends dropped a few inches away. The ends were all clean cut as though done by shears. Careful examination showed that this had been done by jack rabbits. Tracks and sign were seen and one of the animals was jumped. It ran off across the rice through a check where the water in blades was 4 inches deep. It was surprised to see it enter water so readily. Mr. Furman admitted that the damage had been done by rabbits and said that as he had come down here when the ground was wet and had found the ducks in here he had jumped to the conclusion that the ducks had been eating the green rice. As you say they had been coming in here also and had crossed on the rice.

Furman was very bitter against the ducks and talked about them extensively.

Mr. Burmister a farmer said that ducks caused loss of $10,000 in shocked rice last year in this vicinity. The birds are doing him no damage at present. His estimate was that one million ducks last year had each eaten a dollars worth of

fine. It was in favor of killing them all ff. Mr. Burman & Bannister were strongly opposed to the game Clubs.

Returned to work at 12:30 as usual by hot.

Killed 100 Packards and found them Wonderful Bird Cannibals. Killed 3 Blackbirds & then found in stomachs fully as many Packards as Blackbirds all through.

Dunham would not listen to the idea of using bombs. Thought he had seen them tried but remarked that Chicks play them?

Burman said that Blackbirds did not damage the rice here. I saw my Jew.

Worked this afternoon in water, Burgham & reports.

Met Mr. W. K. Gilbert in the evening and talked over the Rice situation with him. Mr. W. K. Gilbert was a heavy loser through the ducks ~~ruined~~ last year. Was at his ranch in Jerring.

August 31, Saturday.

Hot wind very hot wind last night. Aquinaldo did not go to bed at all last night. Lack of talking duck. Met a number of men whom I had met.

Conway Tabor was C. Sparks, Chairman of the County Board of Supervisors. He said that he had an interest in some

rice near here and that he had
misbranded rice and to shoot ducks
coming into it.

He was also inquiring concerning
the carrying of shotguns and
other firearms by hunters. There is con-
siderable sentiment arising against
these birds here. Gabriel said that he
was ~~going~~ willing to be arrested
and stand trial for shooting ducks
out of rice.

Left Biggart & went out to
the D'Egilbert Ranch again and
was there until 1:30 looking thru
the rice. The fields show a good
even stand and some of the grain
is especially fine. He is growing
Rexoro Nero and Water Boken. No
ducks are working here in the fields
now.

Mr. D'Egilbert says that his
experience with the birds came
late last October while the rice
was in the shock. They were thick
at the time and were getting only
about 400 sacks a day. The yield
suddenly fell to 700 sacks
for no apparent reason and on looking
over the shocks they found that
many had been stuffed by ducks.
Mr. D'Egilbert and Mr. Benjamin
went out that night with shotguns
and fired and the ducks came in

in hordes it was impossible to drive them off. Many were Killed. The owners of the Birds worked on the dam before it was cut so that it was not profitable to cut it. He estimated his loss at $16,000. with rice selling at $.75 a sack. Congressman Lea was hot at his job. And saw the damage that had been done which it was true.

Rice bird Blackbirds are working on rice that has filled and are doing some damage. All the work was done along the creeks and levees. There are no trees on the purchase here & and the birds must feed on levees or fences. Then they fly out & feed on the rice immediately adjacent. Some of the rice taken was used. Some which is valued at 2 cents a pound. Eggs of this work were gathered.

I was working with Tu Choke & saw many [illegible] where rice apparently [illegible] except he had been eating the rice. I shot with Cominals & cut down the rice stalks near the base of the first leaf. The long stalk was then dragged up and cut off again immediately below the head of the grain was eaten as it stood. The head [illegible]

was cut off only a few stalks that proved difficult to handle. The rice was readily hulled and the hulls left in little piles all collected together at one spot. Sometimes the head was cut into short segments. Sometimes the grain was entirely removed from the head and sometimes part of the grain was left on the stalk. The stalks were usually cut off 6 or 8 inches above the water. The mice must swim out to it as in some cases the stalks were in water. There is some rise and fall of water level along the creeks however with the amount of water thrown in so that the animals might reach rice at one time easily that would be inaccessible at another.

This mouse work can be distinguished from Blackbird work by the ragged ends of the cuts stems with their ragged ends and by the neat little piles of hulls. Where blackbirds are working on grain over creeks the hulls are scattered at random. These hulls also are accompanied always by considerable amounts of bird dung.

Cyperus grew commonly along the creeks and where the broad umbrella like flowering heads touched the mixed sand where the mice had climbed up and sat on them while eating the rice. On this case the heads

were sometimes cut off and sometimes not.

On examining these fields of found one was 6X10 feet and another about 15X10 feet that had been flattened by wind. These two spots were in heavy standing grain and looked like the impress of the foot of some large animal. These would certainly furnish a resting place for birds (ducks) if they were about the edge of grain fields and this the ducks should be accused of doing the damage by trampling down the grain.

I was shown one check of rice here that had been allowed to seed by volunteer and was told that the whole field would have done this. And yet the ranchers are complaining that ducks are curtailing the profits on the stubble by eating all the shattered grain. A flock was seen on this field all last winter and ducks feed on it continually yet it was able to seed. I intimated something of this sort and the matter was explained by saying that there was much down grain here that could not be cut. But that seems hardly to agree with the original complaint. The rice industry is so new here that the growers do not understand the evil of volunteer by ringing in the

varieties I saw the inferior red rice. I was told that there is no red rice here.

Leo Hahn, Chairman of the County Board of Supervisors, advocated throwing open the hunting season without restriction so that the birds may be shot and killed without question. He says that he will tell any man to shoot the ducks eating his rice and that he is certain that there will be no convictions for this.

I also met Ernest Baker who is foreman at the Spaulding Ranch. He said that opening the season early would be foolishness. That the birds can be moved out of the rice fields but that they must be allowed to stay in the marshes. It was his opinion that the whole thing could be done more economically by bombarding them by the shotgun.

I worked along a number of checked in D'Egilbert rice fields but saw no signs of duck damage nor is none claimed now.

Returned to town at 1:30 and at Mr. D'Egilbert's invitation attended a meeting of rice men, presided over by him, to discuss the duck question and other things of interest.

Mr. D'Egilbert opened the meeting by summing up the duck situation

as that was receiving by enrichment the most important. He said that after considering the situation last year at the close of the rice season that he and three other planters estimated the loss on rice alone at 1270 cars of the total crop of about 300,000 sacks. This was valued then at $3.75 or about $1,000,000. He said that two checks about 600-700 feet long had been entirely lost and that about 40 acres of standing grain had been wrecked and destroyed. The greatest damage however was to grain in the shock. His personal damage on 1525 acres amounted to $46,000.

In addition to this was there was claimed a loss of pasture through the ducks picking off sheltered grain. This was valued at 60 days for another million in terms of money.

Ernest Baker spoke next and gave as his impression that the birds could be driven out economically by means of bombs. The question was simply one of whether farmers wanted to kill ducks or protect their fields. That it was foolish to kill the birds.

Possibly representation from this district was also present. He is not a rice grower but was

interested in the growers for [illegible]
(and also in the it is this chamber for
reduction) He proposed absolute extermination
for the birds saying that they were
destructive and that there was no
excuse for their existence. He suggested
to me later that the birds be
followed to their breeding grounds and
there their nests electrified!!! His
testimony is hardly to be taken seriously

Dr. Osgood and another grower
protested that all of the birds should
be killed.

A farm manager for the
Dodge Land Company stated that he
had killed in 30 days 3 shells and a
supply of [illegible] to protect his fields.
He also said that he thought that
flash and searchlights would be
a success.

It was stated by many that
night shooting was uncertain as the
men cannot [illegible] their shells
in any direction and aught
on a rice shock.

Mr. Stephens president of the
association told me privately that
he thought there was more agitation
over the matter than it warranted.

About 60 men were present representing
from 40,000 - 45000 acres of rice. Of
nobody knows that two thirds
of this amount was not represented

actual growers but by men who farmed the land and took it based.

The sense of the meeting in general was that the ducks were considered a menace and that some means should be taken to decrease their numbers.

I was asked if I would make any preliminary report in the matter and replied that I would confer with Mr. Nelson in regard to it when he came West.

I was glad to attend this meeting as it made me acquainted with many growers and gave me an ideal of the sentiment.

While ~~September~~ in Fresno, I met with J. E. Carpenter at Maxwell this evening and he said that there was nothing new there.

Fresno, Sunday.

Worked for an hour or so in my accounts and then met J. E. Carpenter at 9:00 by appointment. He said that birds could be found in scattered near Maxwell. I made arrangements to come to Maxwell tomorrow morning.

At ten o'clock met with Mr. O'Egbert and his partner Mr. Lindeman at the property south of town and then drove to a ranch that they rent in Butte

County near Nelson. I questioned a young fellow named Bates on the Ranch regarding ducks working in the rice and he said that about 100 were coming in to feed in the rice and about two hundred to another. They were doing no damage but he said that he was sorry that he had scared them up once as he wanted to get a shot at them! Later he was properly coached and said that they were smashing many acres but this I failed to see in the fields. I saw about 100 Pintails in one fine pond in one field.

The trip today took me through the Ridchings of the Dodge Land Company and also the Country north of Richvale so that now I have an idea of all this region.

Chesterton & Burmister near Willows have sown very late rice and I saw some in the fields near Willows. That are much delayed.

We came across in the evening from 6:30 to eight and watching closely for ducks. Saw only about 6 or 8 flocks 300 ducks in all. There is little or no flight here now and

There are many ducks this last week. It is true now the Ducks that have come in are settled and we need nothing in the grain.

September 2, Monday.

Left Wilcox this morning via C.P. at 8:00 A.M. Arrived Maxwell 8:30 A.M.

Met J.S. Carpenter this a.m. went with him out to some fields 1/2 mile east of Maxwell owned by Sedums. Ducks have been alighting in ponds in this fields and damage was feared. Could see no signs of this however after a careful examination. A few small flocks of Pintails working over the fields but men were out shooting them. J.J. flushed birds from the grain. But as it was not hunted out there was nothing for them to harm.

This P.M. came down in the Morning I saw about 1800 Pintail alighting in Barley stubble a mile and a half north of Maxwell. We went back up there. To look them over as there was nice adjoining Rest of the birds had left when we came back but about 100 were still there. The birds were feeding in the stubble and were picking up the scattered grain. The ducks were spread out

in a long flock and while some were
feeding with their heads down others
were on the alert watching me.

September 3, Tuesday

Very cool this morning.
Last night at dusk I was out
on Harden's Place but got out there too
late to see much. Small flocks of Teal
were flying around swiftly and I saw
some Pintails.

This morning I went out again
at 7:30. In the center of one field
of ripening Lone Hero were two ducks
lower than the others. That had
flooded until water was standing
within 6 inches of the heads of rice.
The grain was in the stiff dough
and was turning yellow. The heads
hung over bending down toward the
water.

About 200 Pintails were gathered
in here and were beginning to feed
on the rice. As I walked out along
the checks I could hear their pitting
quacking at a distance. I approached
pa mill and small flocks kept
coming in to join them. The stand
of rice was not more than
three tenths of what it should have
been and the high water
had covered the stems. Small
lanes of more open water showed
all through. The ducks coming in

Expenses August 1-31, 1918

Form 4 98.18

Transportation requests 23.85

122.03

unexpended balance 404.07

122.03

282.04

estimate for Sept. $200.00*

with flapping wings, extended feet and head bent down, hovered over the grain for an instant and then plunged in. As the game rose in a great cloud, shot for but was unable to recover them.

On going out into the rice fields we found in a space of 100 feet by 20 feet and in the half that was nearest the river about 1/3 of the rice heads had had the kernels taken out in part. In some instances the terminal grains were gone and in some the milk was taken from the middle of the head. In a few instances the raceme was broken in the middle. There was no indication of this other than that of broken stalks.

The situation here is exceptional in that the rice is badly flooded.

Returned to town and then left for Mariveles via Cabcaben at 12:15 P.M. Transferred at Orion and reached Limay at 4:55 P.M.

Found part of our shipment of duck bombs there and made arrangements to return with them to Manila tomorrow.

Ricketts said that he would go down from Cavite in a blind Sunday. Man was after ducks last and killed many. Claimed that a hunting guide had told him that the ducks were going in the rice fields in September.

September 4 Wednesday.

Talked with Mr. Cooper this morning. He said that after the shooting season there were no ducks returned for 4 days but that they were in again now.

He reported that there was talk of shooting in the region west of Gridley. Two men there reported to have killed 165 birds in 5 shots!! This of course is impossible.

Mr. Ricketts was unable to report anything new in the duck line. He will join me in Maxwell tomorrow.

Talked with Mr. George Neale at Sacramento re Long Distance. He said that it was proposed to hold a demonstration of the bombs on Friday somewhere on the west side. He told him of the trouble at Maxwell and said that because of the condition there that it was proposed to take immediate action.

Left Sacramento via the S.P. at 12:50 P.M. and transferred again at Tehama. The Sacramento river here has a growth of oaks and sycamores lining its banks and there are open groves of oaks along the banks.

Reached Maxwell at 5:15 P.M.

took my baggage to the hotel immediately and unpacked some duck bombs that I had brought around with me. Found that I had only one mortar so got a piece of

two inch galvanized iron pipe, a connection and a plug and made another at a hardware store. Swallowed a hasty supper and then went out to the Warden Ranch leaving Maxwell at home. Was out on the lawn at seven thirty and thought we would wait until dusk before beginning operations. While we were still debating this matter however ducks began to leave the lake. There were feeding and in ten minutes all were gone off to the ~~ocean~~ and slough up to the south east. There was quite a flight for about a quarter of an hour and all of the ducks left the rice fields, where they had been working, for the open water. Subsequent reflection, and I know that they went out before dusk as this is the time of year when the birds eat before dark. The moonlight nights they remain until late. This spoiled our work for the night but I set off some of the bombs to try them out anyway and drive out what stragglers were still in the rice. The bombs that I selected were made by the ~~Eastern~~ Los Angeles Fireworks Co and were sold to me by the

Pacific Lake Co. The type used last night was an ordinary bomb with an extra heavy firing charge. This threw the bomb about 30 yards farther than the ordinary type and it was very effective.

The second style used contained a considerable amount of Magnesium. In exploding these gave a blinding flash but only a slight report. These likewise were a success but I believe that it will be better to eliminate part of the flash and to increase the noise.

There were many Night Herons in the marsh and it was amusing to hear the young birds squawk and bawl as the bombs exploded. Great Blue & Night Herons, Killdeer, Greater Yellowlegs and Stilts all made a great uproar.

Mr. Stewart who watched proceedings at a distance of a mile said that the reports were not audible but that the flash was very bright. Ducks near him were not disturbed. Returned to town at a quarter past nine.

September 5, Thursday.

Mr. Carpenter, Mr. Bismark Hardin and I went out to the Hardin Ranch at six this morning. The ducks were

coming in to the area where they were feeding the night before and by the time we had walked out along the creek and had our mortars in readiness at least 6000 Pintails were gathered in a lake or low creek in an area of about 5 acres. ~~My first bomb exploded, firing charge and~~

The mortars were embedded half way in the mud creek bed and were inclined at an angle of 45°. The first bombs I sighted by means of portees that Cutler found that fitted ~~fitted~~ were slow enough to permit the use of matches (Allen). My first bomb exploded, firing charge and all, in the mortar but had no more effect than to drive the mortar at least ten inches further in the ground. The next two exploded well out in the air over the circling ducks ~~that~~ were rising in a cloud from the rice. My long distance bombs threw well but my second one failed to explode much to my disappointment so it passed right through a flock of birds. I finally six bombs there and cleaned this lake and in addition raised a body

of two or three thousand birds on a larger lake where conditions were the same an eighth of a mile below. A small bunch of birds alighted on a small lake an eighth of a mile north and Dr went over and threw two bombs into them. This cleared the field and after waiting a few minutes Dr returned to town.

I learned later that the bombing had been witnessed from the California Rice Company nearly a mile and a half away. The reports of the bombs were heard there and the smoke was plainly visible. Dr used bombs this morning carrying considerable amounts of ~~explosive~~ ammunition. At the explosion this throws out a puff of white smoke.

After breakfast Carpenter and I went back and looked the thing over again. There were no ducks in at all in the fields.

The area of rice that the ducks have eaten shows light and brown against the green.

We went on from here below to a place where birds were lighting in but found that they were dropping in the open ponds.

Here I met Mrs. Robt. Blevins and Mr. Fordyce who have 8000

acres here that they have put under water and are treating; this includes the Burden tract. Mr. Fordyce was very emphatic about the damage done by ducks (though he is not actually engaged in rice growing) stated that in a few days it would be necessary for them (meaning himself and partners) to hire 25 or 30 men and buy ammunition for the purpose of herding out the birds. As a matter of fact he handles only the water and land has no expense in connection with the rice culture. As rental he receives one third of the crop. He made the statement that "thousands of birds are being killed to rot in the fields" and said that a large detachment of the men training at Camp Kearney should be sent up here to exterminate the birds and that they could be used for meat in the training camps. He said that the moneyed men who had invested his money was the only one to be considered in this matter and that no else had any rights. He finally became wrought up to such a point that it became rather insulting so that I had to call him down. He was pretty tame when we left him.

Met Mr. Geo. Neale and wife at Sunday in Maxwell at noon. Ed Ricketts came in about one. He and Carl

and I drove out Price to the rice owned by Hankin Khan and Baber. Hankin took me down to a large lake area a short distance behind that where I have been bombing ducks on Harden's place. This lake shows the same condition of a thin stand of rice that I found on Harden's & I judge that this carry about 1/3 of the crop found elsewhere in the same fields.

A few pintails were scattered out through here feeding on the rice but there was no extensive flight at this time. I walked out into the rice and found that scattered heads had been eaten by the ducks. The Rice is Water Buckwheat and is only partly headed. Some of the grain is in the stiff dough. In many places the grain had not been touched at all & in others a few heads had been eaten. The damage was slight as yet and scattered.

It was intensely hot down here in the late afternoon and I was glad to get back to the car.

From here we went around to Harden's again and lay on the levee from 5:00 until six watching the flight of ducks. No birds came in to the area that we had bombed at all. There were a good

many horsemen that were carrying in water to the workers.

In returning to Maxwell we found that the bombing demonstration that was to have been held tomorrow had been postponed so that Ricketts returned to his Ranch.

September 6, Friday.

Was up this morning shortly after six and with Mr. Calgaton drove at once out to the Harden ranch. A few ducks were lighting in the small lake and we put them out with a few bombs. About 500 were in the field and these left at once. Cool and sharp this morning. Returned to town for breakfast at eight.

About nine we drove to Willows. At the hotel I met Mr. A. F. Rousseau who is farming rice here - he complained that the birds came in on us at night when it was difficult to hunt them. He wanted the season thrown open so that the birds might be killed off and proposed to control the hunters on his fields. Was not anxious to talk of the matter for some reason and soon left Mr.

Mr. Ben Garland said that there was nothing new at the W. Egilbert Ranch.

Mr. Ben Turman said that the

ducks were coming in to open ~~ponds~~ lakes in this vicinity but that he had the Chinaman herding them out with a 44 rifle used jointly in herding them. He found this very successful.

Met Mr. Briard from the Perrin ranch (Princeton Rice Co.) and he reported that he had begun to wallow down heavy rice & weeds on his place. I made an appointment to meet him at ten tomorrow at the ranch.

Met Mr. Ralph Flack representing the Radcliff Sales Co. San Francisco. Mr. Flack turned a box of bombs (black) over to me and told me to count them and let the office know how many there were. These bombs had been shipped up for a demonstration but had not been used. Found on opening the box that it contained 3½ dozen, more than I need right now. Mr. Bismark Harden wanted a dozen so I gave them to him and he will remit for them. The others are to be charged to your account.

Had dinner in Willows. Left there about 2:30 and returned to Maxwell.

I bought a piece of 2 inch galvanized iron pipe 18 inches long, threaded and nickeled the short barrel in my heavy shooter with it. This is the extreme length that can be used with the grains put in the bombs at present. Use 2

the first I found it necessary to put in a small handful of dirt in one or two instances to produce the effect. I test shot it at the edge of town & got very good results.

Met Mr. Raymond Houcks who has 600 acres & more of rice near Colusa. Talked with him for some time. He thought that the bombs were good & said that he had had bad luck with them last year. The first shipment were very good. The second lot were poorer and the third lot were very poor indeed. He seemed to think that the bombers used inferior material in the last ones. He had on his pocket that he considered successful calls that he was going to use this year. It has a duck mouth on his place that makes it hard as the ducks can't get in and then work out in the rice bordering & taking the grain in bunches of one or two at a time. He had comparatively little trouble with geese but much with the sandhill crane and coots when it was cut.

His idea was that there should be a restricted area here in which ducks might be killed in herding them from the rice. He said that the best men he could employ for herders were market hunters or

they understood the habits of the birds. This is without doubt true. He continued that these sentences were formed upon by the same Confusion which existed in their former relation of the law.

Also that Mr. George Hawks his brother.

At seven we went out to the Nardini marsh again. No ducks were working where I we had used the bombs and Mr. Hardin said that there had been none there all day. A few were lighting just down on the lake belonging to Hankin Khan. We walked over there along the levee passing Hardin's lake by the way. Three Mallards were the only ducks flushed from it.

We were able to get up only to within 400 yards of Hankins lake but two bombs followed by two more cleared this area and drove out the birds. The number of birds was only about 500 and since the bombing has begun birds have been getting less & less numerous here. The guns who have race below are shooting the birds out ~~but~~ and the number of shots that I hear morning and evening has been steadily decreasing. The experiment on Hardin's place therefore has

cleared over 3500 acres of land of ducks. I have used 8 bombs Sept 5, 8 Sept. 6 and four this morning, though these last ones I hardly counted as they were shot over into this lake a quarter of a mile away.

The heavy mortar with the long barrel is a distinct success as it throws the bombs from 5 to 20 yards farther than the shorter mortar. I made of light material. It has a little recoil also. Carpenter has christened it "Big Ben."

The bombs made a loud report at a distance of a mile as they were distinctly heard by Mr. Harden who was that far away.

September 7, Saturday.

Was out this morning at daybreak and went out with Mr. Carpenter to the Harden ranch. We found about 3500 Pintails in the low area of rice and put them up with four bombs. The birds lay quite well in the rice and let us get up within 60 yards. Occasionally two or three would rise and fly a short distance and then drop back again out of sight but they paid no attention to us until we began shooting. For the past two mornings however a small flock has flown as we were coming out along the

Ducks and I have imagined that they were birds that had been hunted out before.

The birds in here this morning are newcomers from their actions. There seems to have been quite a flight in here last night. Small pot holes were covered with Pintails resting and drinking and the birds seemed rather tired. In addition a flock of 350 White Pelicans was seen.

Returned to Maxwell for breakfast and then drove north to the Princeton Rice Company. I had an appointment with Mr. Beard but found that he had gone in to town. However Mr. Richard, presenting attorney for Colusa Co., who was visiting there took me out to a small pool in the rice where it was alleged that ducks had begun to "wallow" down the heavy rice. On examining this area I found that it was very rank growth of heavy rice that had been lodged by the wind and that the ducks had nothing to do with it. About one fourth of the acre was down. None of the grain had been eaten, the straw was not crushed down and there were no piles of duck dung or scattered duck feathers about.

I saw a number of Scaups in this rice. They were here in the

down grain and acted like the cushis in Porto Rico under similar conditions running and jumping ahead of me so that at last I threw at it striking some rocks. Accidentally one dropped into the water.

There were some areas of good rice in these fields but some of the stand was thin and there were many spare spots due to alkali.

Met Mr. Pierce President of the company that controls this ranch.

Reached Norwell again about one had dinner and then talked in my notes until three. Carpenter and I then drove out to the Nardini place again and took some photographs of the mortar ja bomba, damaged rifle etc.

The bomb threw for a distance of 120 yards before exploding.

There are two areas on the Nardini ranch and a large one on Nardini Khan & Babu adjoining. Where the land was low and it was found that it could not be drained after seeding. On this reason the rice did not stool, sending up only one or two shoots from each plant. This has made a thin stand of grain in these places that might have yielded from 8 to 12 sacks to the acre. The chinks are eating this and it will require constant hunting to keep them out. They strip the heads of the grain which is now in the

stiff dough and the stalks and adds them in striking white so that they stand out against the green of the surrounding rice.

Spent a couple of hours with Mr. B. Harder this evening. He said that for three or four days after we began using bombs that they had tried to shoot the birds out of here but without success; he was convinced of the efficiency of the bombs.

I asked him what he thought of the complaint made that ducks destroy pasture by eating the shattered rice. He thought this claim poorly founded as in all the fields that said that there was sufficient volunteer rice to cover the fields in spring. This point must be looked into carefully and it may be that it will have to be settled by observation in spring.

September 5, Sunday.

Cold and dark this morning with an early rain threatening. Went out to the Harder place before breakfast and found about 2000 pintail in the lake. At first 6000 more were on the lower lakes. 4 bombs cleared the entire area and drove the birds out for a distance of a mile.

Returned to town at nine and packed up my outfit. Left Maxwell at 11:30 and drove to Colusa in auto

reaching there at noon. Had dinner in Colusa. This is a pretty place and has a number of fine homes.

Left Colusa at 2:05 via Sacramento Northern, changed cars at Marysville and reached Live Oak at 5:15 P.M. registered at the Park Hotel.

Mr Ricketts was in the country so did not see him this evening.

Cool all day.

September 9, Monday.

Talked with Mr. Cooper this morning and met his partner Mr. Gingg. Mr. Cooper said that the bombs had driven the ducks out of his place entirely. Blackwall Hawk & Blackbirds is still working on his rice.

Ricketts and I went out Sutter way & Cooper's place to a spot where many ducks had been alighting. We found however that it was in a field of barley stubble.

Today is a legal holiday, admission day, in this state, the anniversary of the admission of the state into the union. Many are out to Marysville this afternoon to see the winter fruit exhibit.

Worked from 9 to six on the Chuscza Mountain report and completed it. Mailed it tonight by registered mail. 47 pages of manuscript.

Cool and pleasant all day. Much activity among the small migrants at present.

September 10, Tuesday.

Expected to see Mr. Cooper this morning in order to poison some Kaffir corn heads for blackbirds. Got everything ready and waited until 10 o'clock but he did not show up.

Went out then with E. Ricketts to Butte Creek. There were only about 500 Pintails on the ponds there where we had seen thousands on previous visits. It must be that waste water from the rice is flooding barley fields and that the birds are feeding in them. I was told that Sunday and the day before there had been a big flight come in here toward six in the evening.

We visited a shooting property belonging to Keller and Berry [illegible] Francisco (The whole frontage here is owned by gun clubs). These two men have built two forks out here and have them chained together so that they can rise and fall with the shift in water. The forks are twelve feet or 14 feet wide by 18 feet or 20 feet long. One is fitted up for a kitchen and dining room, the other for a bedroom and lounging room.

Both these forks a series of board walks leads out through the marsh to various blind. The walks are made of timber such

boards laid on supports.

We went over to the ducks in a small punt with high pointed ends, called locally a "Tasie splitter" to distinguish it from the flat nosed Punts which have square sterns and are broader. Among growths of willows (Cuckoo) Willows Bulte Reed and Typha were prevalent in these. Mallards and Teal ducks came in to these pools and pannings and Hides are built in the tops of willow trees 12 or 15 feet above the ground from which to shoot. As the Hides have been in use for several years new shoots have grown up around them making excellent concealment.

The area here is entirely dry in summer but is marshy when water is coming in over it now. The vegetation, called Tule petate, was common, as was Polygonum Punctatum, Polygonum and Ceratophyllum. These did not make good cleaning as the ice had them flat. Ducks were abundant.

Stock Tanks are also sunk in the ground on the stock farms for use as Hides when the ducks are

This is a great place here for birds, and I think it will be especially good in spring.

Returned to town at 5 P.M.

Called up the 7 o'clock train in Sacramento and talked with Neale and Newbert. No new reports. They are going to send Bryant to Willows to work on the rice proposition.

Pickett and I then drove out to Cooper's place but found him not at home.

Returned to town at 5 P.M.

September 11, Wednesday

This morning I worked on notes after breakfast and then met Mr. Cooper by appointment. He has been having trouble with a small flock of blackbirds in his rice and I began to prepare some poison for them. Went out to his ranch and cut thirteen stalks of ripe Kaffir corn. Made a hundred starch paste strychnine poison adding stalum bicarbonate and saccharine and dipped the heads in this draining fifteen well. These were set up stuck in the levees where the blackbirds were working five in one place, eight in another.

Cooper has been losing ducks here and we did not see a duck on his place.

Returned to ranch at 5 P.M.

had dinner and then with
Ed Ricketts drove south to Marysville.
Visited the taxidermy store of G. W.
Peacock there and I examined McCulloch's
collection. It is very heterogeneous sort
of stuff. North american and foreign. The
north american stuff is in part from
the McIlwraith collection of Hamilton, but
there is comparatively little of that
stuff. The foreign stuff is largely
with out data. I should say it has
been gathered together solely with the
idea of quantity rather than quality. They
are under the principle in the East
and we are ornithologists. The birds are
in rather poor shape. The collection is
devoid of the showy large species of
gaily-colored birds.

I went south from Marysville
to the region of Arboga (Yuba County)
where there is considerable ice. The
fields here nearly all showed a fine
corn stand and were so clean of
weeds grass that only a spear was
seen. The ice was in only a few fields
was maturing rapidly. There were flocks
of Lapwings on the fields and
all seemed to be well drained. The land
owned is by a better grade than that
used for ice farming. I like all of it
was a duck country and so
ducks whatever were seen.

Tricolored Blackbirds, one or two

Brewers and Yellowheads were working at the oats in Jim Fields but the damage done I was not examining.

Returned to the Oak at six.

Rode to Priddy & return with friends in the evening but heard nothing new.

September 12. Thursday

Holiday today - Registration day so was not able to do much. A slow rain began early yesterday evening And continued steadily all day. Everybody holed up and there was little going on all day long. I had intended to go over to the Feather River but it was so wet that all bird life was inactive and I remained in my room nearly all day going out only for meals.

Wrote some notes, did correspondence and cleaned up various odds and ends. Worked thus until time to go to bed.

September 13, Friday.

The rain ceased for a time this morning and it seemed as though the sun was going to break through. Ricketts and I started out this morning to the Feather River to work east of town. The river is a fine stream here though the water in it is low. The stream is about

60 to 70. Woods rocky, with a moderate current and clear water. Bass fishing is said to be good. Saw a few [illegible] and [illegible] some alder [illegible] good sign. Grapevines with common fruit made beautiful hanging festoons from the [illegible] trees. There were a few [illegible] rattles [illegible] and [illegible] in the woods and [illegible] were some around nearly to my waist. Small birds were fairly abundant but remained somewhat inactive as it was so wet. There was a [illegible] of interest along the river itself. The [illegible] crossed the [illegible] Woods [illegible] good but [illegible] for the most part in the woods.

Bally [illegible] were common and we jumped several large coveys. Was surprised to find the Wilson-Snipe here. Shot one which I preserved in formalin.

The wood formation was also similar that in places it reminded me of Porto Rico. This area will bear more careful investigation when the weather is more favorable.

Had thought that by coming out here I might get a line on a flight of ducks but none were seen all morning, so that I was [illegible]

Returned to town at 12:30. Changed clothes and had dinner. Rain began at once and continued off and on during the afternoon.

Packed up for outfit.

Left Live Oak at 4:55 via S.P. arrived finally 5:10 P.M.

Was unable to get a room at the hotel but finally secured one in a cheap lodging house.

Drizzling rain continued until after supper when there was a heavy downpour for one hour or more.

Went to bed early.

September 14 Saturday.

The sky was lowering this morning but finally cleared.

Met Mr. Albert Gifford, foreman of the Dimmick Ranch and talked with him for one hour. He said that many ducks were feeding now in one of his lower fields, but are doing no damage there as the rice in it is being grown merely for feed. It was not possible to get water in it until July and the grain will not make anything. Mr. Gifford believes that the ducks are eating the tender rice shoots but has no evidence in support of this.

He has 300 acres in the rice at the present time but has no damage by ducks now. Blackbirds are very bad

It advocates the early opening of the hunting season that the ducks may be killed in the rice fields and used for food. Also his own case reviewed by Gifford that he thought this hardly profitable as ammunition was so high. It will not permit hunters to walk through his heavy rice.

Mr. Gifford started in by making rather astonishing assertions of damage by birds but when initial impression was found to be admitted that they were doing him no harm.

Met Mr. E. A. Smitten, a Englishman in partnership with Mr. Hellman, city engineer of Gridley. After talking with Mr. Smitten for a time made an appointment to go out with him to his ranch at once. The road was very bad but in a Ford automobile got through without actually getting stuck. We went out in the night to the ranch house and then went on down three miles further with a team and light wagon to his rice ranch. The road beyond here was so sticky and for that [illegible] the wheels would clean the hubs and it was all we could do to get through.

Smitten has about 500 acres in rice, mainly 1600. Ducks began coming in on one small area but about

ten days ago and have done considerable damage. They came in to one area where there was considerable coarse grass mixed with a fair stand of rice and had flattened down and destroyed about between 12 and 15 acres of rice that would go about 25 sacks of grain to the acre. This damage was in two spots, one of about three acres and the other larger.

Apparently the birds had come in first attracted by the water grass. In each of the two tracts I found a small area ten or twelve feet across containing nothing but water grass and surmised that the birds had begun in this. From here they had spread out on all sides. Clumps of rice were still standing in the area that had patties and runways leading all around them. Much rice and practically all of the water grass had been trampled down into the water and was still submerged. Much of the standing rice had been sent over but had its heads still. The heads were all well stuffed and the entire area was ruined. In many cases the ducks ought to reach the rice heads had apparently used the stems in their bills and from this a sharp rip to break them and

then perhaps had nipped the stems once or twice more to bring the head within reach. Distinct beds with the stems cut and bruised were seen in many stacks.

Some areas had been flattened down for 8 or 10 yards but in general the ducks in feeding had left clumps with pathways around them. These clumps were more than a foot across and it was able to walk over the entire area without trampling grain down by following the paths left by the ducks.

~~Mr Smith told me that the ducks~~ This field adjoins the open ground with the Sign Lakes on Butte Creek and lies west of the King Tract that I examined previously. Mr Smith told me that the ducks came up from the Butte Creek area and crossed this field from southwest to northeast. He had sent a man at the lower southwest corner ~~and~~ on at the middle and on at the northeast to shoot the birds out. They had some success during the day but the birds came in during the night. He then said he had used 20 cases of Black Powder ammunition; about half of this was used in killing Blackbirds. Mr. Smith said that he did not know what was the best means to take to combat the bird

There were a few ducks in toward dusk but the number was comparatively small. A few flocks came circling in over the rice fields but a shot made them rise again. The heavy rain that has just ~~heard~~ heard has ~~drowned~~ ~~the~~ dispersed the birds so there is now abundant food for them in the barley fields and in the stubble. The standing water in these fields has attracted the birds and taken them out of the rice. This has caused a reduction of damage and the ducks have not been feeding in the rice since the rains started.

Blackbirds, mainly Agelaius tricolor were very bad here. This region is a low lying one with poor drainage so that clumps and beds of tules and cat-tails are numerous along the canals and ditches and even in the rice itself. One or two dead trees offered perches for the birds also and attacks on the rice were made first near these. On shooting the ~~farmers~~ ~~used~~ ~~most~~ ~~for~~ and broadcasting ~~cattle~~ no attempt was made to hit the birds, endeavoring simply to scare them and keep them on the move. They said that shooting made many cripples and that while attracted large flocks of blackbirds which alighted among them

broke down the grain. I was told that one Japanese owner by wire pleading this shells and shiny rice in that instead I shot.

Flocks of 50 to 200 Blackbirds were continually passing back and forth across the fields and as they passed the most fired. The birds flew and moved in but never seemed to go far.

Toward dusk as we were returning we saw a man shooting at ducks from a blind near the water in a field. He fired several shots and I saw him get three ducks. Later I heard that he evidently got some ducks. He was half a mile or more from us. Smitten said that such men were doing more harm as they were herding the ducks back into the rice. This hunter had come out apparently from town as we passed his auto on a bridge. I saw two other men in a blind at the water immediately below the rice fields.

Returned to Gridley about 10:30. Explained the duck combo to Smitten.

September 15, Sunday.

Cold and cloudy this morning when I got up with more rain threatening but it finally cleared about ten and the sun came through. I was up early and took the 7:40 bus for East Gridley and from there went on a mile east to the Feather River

This stream here is practically the same as at Live Oak. It is 50 to 100 yards wide and has a growth of live oak towards and sycamores along its banks. Many of these have great festoons of grapevine hanging from them. This part country in other side is level and flat and has fine symmetrical oaks scattered through the fields. Some of these are magnificent trees.

We crossed the river to the opposite side and followed up stream. There was undergrowth here and weeds but the area was pastured and therefor fairly open to allow free passage. Birds were common and there would evidently many migrants coming in. I miss the great flocks of warblers that we find in the east however and there was no sign of a migrant horde in daylight migration.

However I was able to collect several interesting things. Most of had wanted for Mexico and alcoholics and skeletons, Wrens, Black Phoebe, Bush Tits and others.

The journey was very pleasantly spent as it is the first opportunity to be out in good country since leaving Yellowville in August.

Returned to Gridley shortly after noon had dinner and then rested for

about the material. Ed Pickett and Clyde Hethrick came then and went out beyond Biggs with them. Rice through him Cooke about the same Dave said it is far more advanced than on my last visit. We visited Ed's camp grove here. Ducks were not out in many. Shot a Yellow-billed Magpie and a Barn Owl.

Returned then and went down to Gridley & a Page picked up Frank Smith Bartley Mallard. Many fine birds seen.

Several animals were dead here with anthrax and 40 or 50 Buzzards were gathered to feed upon them. The birds had been resting in the tops of oaks in this pasture and the ground was foul smelling from their ordure. There is complaint among ranchers that the birds are spreading the disease.

September 16 Monday.

Had a touch of the blues this morning and then spent most of the forenoon in work in notes and papers.

One stranger in the hotel lobby was advocating the killing of ducks, their sale and the donation of the money to the Red Cross.

The talking among men around town here is that they want to get out and kill the birds.

Was to go out to the John King place this afternoon but found the roads impassable and could not make it. King said that ducks had been very bad down there but that they were not working now. Two men had paid 30 or 40 cents per piece but without much success. King said that he had paid little attention to them usually and did not know what conditions were. He said that he had had some success herding with a 44 rifle.

I hear that ducks began coming in on McGaffey near Greens and that Green had another man by using a case of black powder shells were able to drive them out.

Met Mr. Jim Tillman partner of Mr. Smitten & Mr. Tillman said that last year he had lost 40 acres of rice before it was cut from the stand was rather thin and contained much watergrass but he estimated the loss at 1000 sacks worth $3.72 a sack. He and Smitten seemed to think that bombs would be successful in night work but were afraid that the Korean help that they had would not use them successfully. This is a very valid objection.

Towards evening I rode out to a farm drying yard with T. Hutchins and Green V. The farm was

much interested in the propagation of Gambirds. Said that they had succeeded in starting one covey of Hungarian Partridge on his place on Platte River but that a hunter had killed them out. Another attempt to stock them was unsuccessful. Pheasants were tried also without success.

September 17, Tuesday.

Was up this morning a short time before in working on exotics and to be brief report at the office.

Went out with J. H. Gresham at 1:30. We attempted to get to the Browning Ranch where Dick Ayers has reported damage by ducks. Drove west of Gridley great but were unable to get through so returned and went to Biggs. Road here was too bad to make it through also. Met Mr. Geo. E. Harvey who said that the ducks had destroyed 50 acres of grain for him last year. He is discouraged in the production of the duck question that is a sundy.

Also met J. C. Mitchell and P. N. Cashen. Latter has planted 156 ½ acres rice and claims the ducks will not touch it.

Told them that I would return here in a week or ten days.

Returned. Then to Gridley and down west to the Sycamore Ranch on Butte Creek. From here we walked out in a field

of 1564 rice (bearded rice) belonging to Gaffney.

Thuds said that Rooks had begun to work in here but that he had shot down and shot them out before they had gotten well started and had driven them out. Where the Rooks had come in the rice was very thin and there were areas that were naturally covered with water grass and Knotweeds. This was all thrown, part of it naturally and partly through Rooks and a few heads had been partly stripped. The birds had worked in here a week or more before and at that time the grain was not filling to any extent so that the birds were finding in the water grass and [illegible] very little [illegible] but here around the rice but these in most part had been made by men and dogs. The damage here 20 jar. was nominal and amounted to nothing.

Mr Owen's ranch I inspected a scaffold now which Blackbirds were shot. This was a frame 15 feet high supported by four poles. A platform was built on top and a man sat on this armed with a 22 rifle loaded with hollow point bullets. The Blackbirds pass across here in morning and evening flight and when any attempt to light

[illegible] with the north [illegible]
[illegible] and Swiss Farm. The method
[illegible] and very successful and this
is practically [illegible]. About
100 acres [illegible] from this one
scaffold.

Hamilton directly opposite has
seven men now [illegible] his
fields with shot guns, and is not
killing the birds at all at that.
Putting a town at bat.

Observed many pintails [illegible]
out over the fields.

Met Mr. [illegible] with
John Tolman. He told me he
put in 40 acres, about
1000 sacks of rice, stood 4 stacks
last year. He says he is [illegible] with
what he is now. He says that the
ducks gave considerable trouble but did
not destroy them so much [illegible]
as some of the [illegible].

Mr. Sierra of Turnbull met this afternoon
and I was out through with [illegible]
when it came out of the [illegible].

Sept. 18 Wednesday.

Worked on notes and reports all
day. Talked with a number of rice
growers but learned nothing new.
Received wire from office regarding
violations of Federal Laws, answered it,
and then wrote report supplementing it

went to bed at ten thirty after packing baggage and get stuff over to depot.

September 19, Thursday.

Got up at 12:50 A.M and caught a train at 1:25 for San Francisco. Got an upper berth and went to bed but did not sleep very well. Reached San Francisco at 9:15. Registered at the Colonial Annex and then went at once to the Fish & Commission. Saw Hunter & Westerfeld and was there until noon.

Attended to some errands and then visited game commission again talking with Westerfeld and Boggis.

Crossed to Berkeley in evening when I attended meeting of Cooper Club and gave them some of my notes on Lake Burford.

Missed one car and did not reach San Francisco until midnight.

September 20, Friday.

Left San Francisco via Southern Pacific at 10:20 A.M. Arrived Sacramento at 2:00 P.M.

Called at the Pacific Rice Growers Association office but found Mr. Murry and Mr. Davis both away.

Also called on Mr. Stephens president of the association at the First Sutter National Bank. He does not consider the situation

regard to ducks not all bad.
Visited Dr Fish & Game Commissioner and found Neale absent on vacation. Talked for an hour and a half with T. Newbert.
Left Sacramento via S.P. at 7:00 P.M. arrived Willows 10:15.
Sent telegram to office from Davis; regarding announcement of coming of Federal Warden.
Registered at Crawford Hotel.
Talked with Spahn but found him very noncommittal.
Saw Carpenter at Maxwell and asked him to come to Willows tomorrow.

September 21, Saturday.
Found that O'Gilbert had gone to Sacramento though he had been informed of my coming and that I wanted to see him.
Was unable to find other growers in town.
Carpenter came at nine and told me that the situation in regard to the ducks was not at all bad. We talked until about noon. Received short answer to telegram that I had been awaiting.
Bought ticket & checked baggage to Maxwell. Had to wait somewhat for train from south on account of possible coming of Cattron.
Got mail and then left for Maxwell

With Carpenter in auto at 2:00 P. M.

Arrived Maxwell at 3:00 P. M. Secured a room at the hotel and got my baggage over.

Talked with Deputy Sheriff Harden and he told me that since the rain ducks had been working in their fields again. And that it had been necessary to employ 4 men to drive them out. From various channels I learned that comparatively few birds are being killed and that there is not much hunting by town hunters. Made arrangements to go out this evening but found later that the birds were not coming in tonight so deferred this until morning.

September 22, Sunday.

Was up this morning at 5:15 and drove out with Carpenter and Harden. Many ducks were gathered in the ponds and the fricefields and were gabbling and quacking at a great rate. One large flock raised from an upper pond as we passed in the car. Below here we many more and these we raised by firing two bombs and later ~~a third and~~ two more. The first two burst together above

the large number of ducks as they raised. There were probably two thousand in all. These immediately scattered and passed off to the southeast. These same bombs raised a large number of birds from the ponds over half a mile away and I fired two more bombs at these a few minutes later as they came overhead. From here we moved down half a mile and with one bomb cleared a lower lake.

The morning was moonlit until it became daylight in the east. Ducks were flying everywhere when we first started in but after the bombing became few. I tried to shoot a couple but could not make it as the birds did not come close enough.

The ducks were probably in large part flight birds that had just come in as they showed a tendency to alight in open water. About seven they ceased to move around and we returned to town.

About 8:30 we drove north to Norman and then across east to Pauls. It was cool and sharp all forenoon and early in the day rain threatened. There was an extensive dry area through here that I had not yet seen. The few fields of Watatribune that had not yet headed were seen and two

will probably not yield much.
Many fields of good rice were seen however.

There were extensive areas here that had not been farmed as yet and these reminded me much of the country north of Matagorda Bay in Texas!

Princeton is a river town of fair size. We drove south here parallel with the river toward Colusa and then came on toward Maxwell across the Long Canute bridge on the County road. In the open waters here were about 500 Pintails and I lay watching them behind me for some time. Then we drove a large number up in some fields further north and about 1000 came down into this pond.

Returned to Maxwell at noon.

After dinner we went west through a small area of rice and on into the hills. Orchard One of the ornithologist Macoun's is now foreman here but he had gone to Willows.

The first of the foothills begin just about 6 miles west of Maxwell and the first low rounded hills give way at once to steep sided pointed promineneies leading back into the main coast range. Many of the

slopes were covered with scrub oaks. We followed a winding road through here for two or three miles to Delta and then returned.

Stopped before coming out into the plains and I had opportunity to look around for a few minutes. The country was very similar to that near Kenville.

Since the rain a fresh green has appeared in sloping and in the stubble fields replacing the monotonous yellow brown of summer and I find the change very refreshing. The afternoon remained cool and pleasant.

On my return about 100 tricolored Blackbirds were found in the rice and I shot 4. All had eaten rice.

This evening I talked with Wm Hagan who is now beginning to cut his early rice. He says that ducks are not bothering him at all now. Last year he claimed to have lost 40 acres of rice. By inquiring from others I later however I learned that it was more or less his own fault as he had allowed his harvest to drag along for three months at least and did not finish it until Jan. 2. In cutting he used a mower to cut along the checks and did not bind this. This was grain lay thus for over a month

and the ducks ate a great deal of it.

September 23 Monday.

Expected to go out this morning for another combing but Starbuck did not come and Carpenters car is laid up. Was up at 6:15.

Met Mr. Spillman who has 700 acres of rice southwest of Maxwell 6 or 7 miles. He says that he has a good stand of Watashinn and Early Prolific. Ducks have been frequenting ponds and stubble near by but have done him no damage. He told me something of 10 Egbuts damage of last year. There was a slough in one place that was damaged and the contours were arranged in hairpin fashion around the end of the slough. A threshing outfit ~~Combine~~ with which Spillman was working came in on Thursday (Oct in October) and began work. The grain was running around 60 sacks to the acre and they were securing from 14 to 16 sacks from each wagon load. Rain set in and no work was done from Friday to Monday. Ducks came at night and on Monday the yield fell to 7 or 8 sacks to the load. Examination showed that ducks had stripped many of the shocks. This damage covered 20 or 40 acres.

Talked also with Enoch Prins

who is farming in this same area and he said that he was now experiencing no damage. ~~But that duck was coming in.~~

Talked also with Kim a Corean. Kim says that the ducks are not doing him much harm save along one slough. Mud hens are very bad there also and are working along the borders of the fields.

Chang showed me a sample of Waterhemp from Kern County.

Cattron called me up from Sacramento saying that he would not be here tomorrow. Wired the office announcing his arrival.

Spent the afternoon in working on notes and reports. Dr

September 24, Tuesday.

Was unable to get into the country this morning as Carpenter's car was broken down. Walked out to the border of town in morning. Fine cool clear weather so that the coast range stood out plainly on the west.

Small flocks of Tricolored Blackbirds were passing over from the southeast to rice fields west of town.

Worked on notes and correspondence during forenoon.

Mr. E. S. Cattron Federal Warden arrived at noon and I met him at the train

We spent most of the afternoon in going over the situation as regards the ducks and rice in general. And in formulating some general principles to be used.

About 4 we drove out to the rice fields 2 miles west. This grain in one field is well injured. Blackbirds were working in it along the checks and doing some damage. I shot a number and found their throats filled with swelled rice.

Returned and went out the county road east. The water at the cement bridge has lowered and few ducks were in the ponds here.

Talked with Bismark Harden in the evening. He expressed himself as believing that the bombs would drive out the ducks.

Calhoun and I went to Willows in the evening. Intended to go on the train but through the kindness of Mr. Purcell who is interested with Harden were enabled to go in his car.

Retained my room in Maxwell as I had my outfit unpacked and wish to continue field work here.

Left Maxwell 8:30 Arr. Willows 9:00 P.M.

Registered at the Crawford Hotel.

Met Mr. D. Egelbut. Bryant arrived by train.

Wednesday September 25.

Spent most of the forenoon in talk with Mr Cattron Mr O'Gilbert again. With Cattron drafted a Night letter to Offie embodying suggestions for granting of permits to ride grounds to spend ducks from rice fields.

Went over to see Donoghue. but found him out.

Bryant went out to O'Gilberts ranch where cutting was beginning and found many fish stranded in the drained fields.

Cattron and I had some further talk after dinner.

At 2:30 I left for Maxwell in Birmingham's car in company with Carpenter and H.C. Bryant, Arrived Maxwell at 3:15. Attended to some business then and then Bryant and I drove out to a small pond two miles east and spent an hour in observing the birds there.

At ten in the morning we drove out with Bismark Hardend and remained in the rice fields until 12:30. The moon came up about 10:30 and at eleven the ducks began to come in from the southeast. We worked out into the ducks around an open lake and sat in the mud for a couple of hours but no birds were lighting in here. Flocks continued

to pass and swing overhead with rushing wings and occasionally I had glimpses of them in the pale moonlight overhead. They did not come in until the moon was about an hour high.

We returned Pres to town at 12:30 and got to bed about one.

Sept. 26, Thursday.

Got up at 2:30 and went out again with Harden. As we came down the river we stopped at intervals to listen. Finally we located a flock of feeding Spring and worked up toward them and set the bomb mortars. At least 3000 birds and perhaps more were feeding within 100 yards of us. Their gobbling and low chattering in feeding made a great volume of noise like the rushing of many waters, through which at intervals came high falsetto quacks as male sprigs struck at some bird coming too near. Bryant was greatly astonished at the manner in which the birds worked and the noise made by them. We fired three bombs and put them out with a great roar of wings.

From here we went in town to the lower end of Hardin's tract

Where we could faintly hear a flock of ducks about half a mile to the west. Harden and I worked out along the creeks and after some difficulty got these birds out with Victor bombs.

We found Mallards scattered singly or in twos or threes in open holes all through the rice. These birds rose and flew off as we passed, rising beyond range for the greater part without calling. Occasionally I could see them.

There were many coots on the large lake but and they rose and spattered off across the surface as we fished our bombs. At daybreak I saw coots walking out from the rice into the ponds.

We returned to the side of Harden's barn at daybreak and at once the flight out from the rice fields began and continued for about 45 minutes. The birds came over low down in the dim light but as the sun rose came on, raised and passed us 90 to 100 yards in the air. I shot a Male Spring and a Male Mallard and we found their throats crammed with green rice clear to their bills. These specimens are of importance for as there is no

rice stubble in the country now it is certain that this rice was stripped from the growing grain. We removed the gizzards and gullets of these birds and preserved them intact.

About 7:15 we returned to town and had breakfast.

~~Went out again~~ The ducks this morning went out somewhat but returned again almost at once so that we suspected that they were shot over on this loafing grounds.

Returned again to these same fields after breakfast and examined some of the areas where damage had been done. In the first place we examined we found about several acres of rice that would run 20 to 25 sacks to the acre had been eaten.

From here we went in down again to the lower end of the tract. Flocks of grigs were still returning from the east ~~so that~~ and were alighting in a large lake. We went out and bombed them out and they went off to the north.

Returned to town at noon for dinner. Cattron arrived at one from Willows.

Bryant, Cattron and I went out again after dinner and made

a careful examination of as many damaged areas as we could locate west of the levee carrying the road down to Hardin's Camp. These show up plainly at a distance as the stripped heads immediately turn a light yellow brown and stand out in abrupt contrast to the grain around them. The area from which we had bombed the birds first this morning was a space in heavy Sure Hard rice. The birds had come in to our new pond and had worked out mainly to the west from this. There were scattered clumps of rice through here at first and then the heavy growth that at a most moderate estimate would go 25 sacks to the acre. The birds had worked out first through some grain that had begun to lodge but had then risen and was still standing. In several places the transition from grain that had been trampled flat to that still erect was abrupt and clean cut. Only a few little lanes running out into this thick rice and five or six feet out found an occasional head had been eaten showing how single shucks were working ahead of the main feeding bands.

Following was our tabulation of the areas destroyed with their estimated acreage and yield per sack.

		yield
2 acres	(thin)	10 sacks per acre
3 "	(heavy)	20-25 "
15 "	(thin)	12 "
2 "	"	12 "
40 "	"	10
10 "	"	10
4 "	heavy	25

This rice was all Sue Hero. From the table above it is seen that the birds take the thin stands of grain first as they are easier to get into. Sue Hero does not stool as heavily as some of the other rices and so is easier to access. All of the above were on Sue Hero. Returned to town late.

September 27, Friday.

Were out this morning at 3:15 and with Bryant, Cattles and Harden went out to the Harden place again.

Ducks began coming in at four and the air was full of them. Harden and I located a place far out west where the birds were working and bombed them out. We found many Mallards scattered along

in open holes in the rice.

At day break the ducks went out again to the southeast and shot two more spring which I gave to Bryant. Both were crammed to the bills with grain rice.

Warden had his camp organized now and we had breakfast with him. The ducks began to return again from the south east and to drop into a big open lake in the rice that apparently they wish to use as a loafing place. Bryant and I walked out along the ducks and I shot one spring as it came over for the rice. Like the first two it was full of the green grain.

We watched the spring drop in for a time and then I fired two bombs and put out. I crossed the lake then and lay in the rice for two hours shooting three more springs and 6 coots. Strangely enough these springs had the throats entirely empty and it may be that they are flight birds.

There were two hundred or more coots in this open lake.

In the afternoon we went on down in the west side of this same tract and Laird farmed by Hopkins Khan and Babe

and Bryant and I went in to look at damage.

Found the following

3 acres heavy 25 sacks to acre
50 " light 12 " " "

This makes a total of about 125 acres mainly light rice that has been taken here.

Cattle returned to Willows in the evening and Mr. C. Westfield executive officer of the fish & game Commission arrived.

September 28, Saturday.

Westfield, Bryant and I went out with Harden this morning at 3:30 a.m. Birds were working in a great flock half as mile to the west. Bryant and I could barely hear them. We went out and combed them out. There had been flashes of lightning all night and we found that we had to get up very near the birds to put them up as they were accustomed to flashing lights of the efforts of ours. We tried them from a distance of an eighth of a mile without success. Finally we waded a big lake and got over into territory that I did not know but by great good luck struck a

check that led us out to where we wanted to go.

Returned about daylight and saw the ducks come out.

The Japanese at the California Rice Company have been out herding day and night and they shoot constantly. They have a day and a night shift that changes about seven in the morning. Westerfeld and I talked with them this morning and they claimed that they had five men herding at night and seven in day. These men are using smokeless powder shells and fire whenever flocks of ducks appear. They claim that they got 4.00 the day with .50 deducted for board. They claim to have used 30 cases of shells this year.

Following this we went up and around Westerfeld's area. Ten rice had been damaged.

Returned to Maxwell at noon and after consultation Mr. Westerfeld agreed that permits for herding ducks from the rice seem about the only solution of the problem.

Left Maxwell in auto at 1:30 and preached Willows at 2:15. Westerfeld, Calkins, Bryant and I had further consultation and

This Westerfield returned to Sacramento to see Newbert.

September 29, Sunday.

Mr. Westerfield called me on the phone at nine this morning and stated that Mr. Newburt had agreed to the issuance of permits for the hunting of ducks. After further talk with Sattem and Bryant it decided to return to Maxwell.

Mr. Fast was kind enough to offer to bring me down in his Cadillac. Left Willows 1:30 arrived Maxwell at 2:00

Met Carpenter and we rode out west of Maxwell and looked at a field of 60 acres of rice. This was ready to cut. No evidence of damage by birds here.

September 30, Monday

Was up at four and rode out with Bismark Warden to his ranch. A few ducks were flying early but the main flight did not come in until about 6:30. The moon is in its wane now and the ducks are not working at night to any extent.

Climbed up in the framework of a new barn that is going up

Expense Sept. 1-30, 1918

Form 4	99.31
Transportation requests	20.42
Form 5 Pacific Sales Co	35.00
" " Colby Fireworks Co	6.80
	161.53

Unexpended balance last month	282.04
additional authorization	400.00
	682.04

Unexpended balance Oct. 1 520.51

and watched the flocks of Pintail as they came in. They flew in from the southeast in flocks of 50 to 100 spread out in long lines and passed over across the rice fields, then swinging in and to return. Small feeding parties swung in low over the river searching for a landing place. Two to three small bunches suddenly dropped in at open places in the rice and began to feed. As the flocks came in this second down to one or another of these places until in an hour the birds were all settled save for a few that alighted in an open lake and then walked out to an open check to stand in the sun.

Returned to town at eight. Worked all day on my expense vouchers.

October 1, Tuesday.

Worked this forenoon and the early part of the afternoon in getting my notes in shape. For several days I have had to neglect them as I have had too much else to do.

About two thirty Carpenter and I drove out east. Considerable areas of early rice have had the water drawn off and cutting is beginning.

We stopped and looked through one field of Watarbum that is

nearly ripe. This rice has a long heavy head and gives a heavy yield. There was no sign of bird damage here.

I shot a jackrabbit there in a small area surrounded by rice. The animal tried to escape by running off to one side and hiding as if it had no chance to get clear away. It was in ragged shape and full of cysts. Made it into a skeleton. Returned to the pond near the cement bridge and lay there for one hour or more watching the birds.

Purcell has a man hunting ducks from his rice near here now.

On my return to town received a telegram from the office announcing that Federal Permission was granted to rice growers to ~~Gather~~ Kill ducks in rice fields. Called up Cattron who had received a copy of the same message.

Went to Welcome on the train at 9:45 reaching there at 10:15.

Talked matter over with Cattron until 12:30. Wrote Westerfeld a special delivery letter regarding the matter.

October 2, Wednesday.

Westerfeld had received a copy of the same telegram as the thing had received publicity in the Chronicle and Examiner. Calpotta came up on some

business this morning and we returned to Maxwell leaving Willows at 11:00 and reaching Maxwell at 11:45.

The Times packed up some specimens and mailed them in and then Carpenter and I drove out east again. Many acres of early rice are now ready for cutting. We stopped for a time in one place and watched the men harvesting. Threshing has begun at Hayden's.

Drove down to Hardin and found that Fucks are still working badly here. He has employed another herder. The birds are not working at night now but come in in early morning. Some were working in the fields at this time as I could see small bunches alighting in one or two places.

On our return we picked up three boys hunting with .22 rifles who had killed two avocets and two killdeer. Like fools the birds and explained to them that they were protected and told them to cease murdering these birds.

The Pintail course that I have talked with seems very well disposed toward the new regulations. Evening Mitchell

October 3, Thursday.

This morning I worked

and official correspondance. Sent in a report to the files on work to date. Worked until the 1:25 P.M. in after that I might say here.

Carpenter and I then drove to Colusa at Colusa I went to the County Clerk's office to enquire concerning a report that had come to me of a bear being paid on buzzards.

I learned that on October 1, 1917 the County Board of Supervisors at the instance of the county veterinarian passed an ordinance stating that one dollar each should be paid for turkey buzzards. This was done to reduce the number of these birds in the belief that they were carriers of disease among domestic animals. This ordinance went into effect on twenty-five days later.

From the records I secured the following data regarding the number of buzzards that county had been paid on. Each number represents a report to me made at one time.

3-14-2-1-1-1-2-11-1-1-29-8-1-1-5
1-4-1-1-1-3-6-2-96-6-1-1-3-3-3-2-8
7-11-1-1-1-1-10-2-4-1-2-83-42-78
4-2-1-6-10-5-3-4-1-1-2-20-60-1-1
48-2-15-9-1-12-1.

This covered the time from the date on which the ordinance went into effect until Aug. 30, 1918. The books had not

been posted for the month of September. The total number killed in which bounty was paid is 676.

These birds were all taken to local inspectors counted and then destroyed by burning. All are supposed to have been Killed in Colusa County. The total is certainly surprising. As this is contrary to the state Game laws I shall report the matter to the Game Commission.

Following this we drove west of Colusa to the long wooden bridge. The area of water here, drainage from the rice has been greatly augmented. This represents the lower end of the Sacramento Basin. Thousands of Pintails were lying here, forming a great bank in the shallow water and in the adjoining flats. I estimated the total as between 15,000 and 20,000. This area forms a feeding ground for all the birds in this section at present. They were resting and feeding here while some were bathing or playing, diving actively about in the water, rising to fly a few feet and then alighting. Occasionally a gun shot from an adjoining rice field raised a few but most paid little attention to this. I believe that at present the majority of these birds are feeding after sunset in

and official correspondence. Sent in a report to the files on work to date. Waited until the 1:28 P.M. in hopes that I might receive a letter.

Carpenter and I then drove to Colusa. At Colusa I went to the County Clerk's office to inquire concerning a report that had come to me of a board bounty paid on buzzards.

It seems that on October 1, 1917 the County Board of Supervisors at the instance of the county veterinarian passed an ordinance stating that one dollar each should be paid for turkey buzzards. This was done to reduce the number of these birds in the belief that they were carriers of disease among domestic animals. This ordinance went into effect on twenty-five days later.

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3; 14; 2; 1, 1, 1, 2, 11; 1, 1; 29-8-1-1-5
1-4-1-1-1-3-6-2-96-6-1-1-3-3-3-2-8
7-11-1-1-1-1-10-2-4-1-2-83-42-78
4-2-1-6-10-5-3-4-1-1-2-20-60-1-1
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This morning we found that they had only once in 24 hours. We were here watching these birds until six in the evening but saw no sign of returning to roost among them.

The rice fields adjoining this slough in one place the fields had been flooded to such an extent that it will be impossible to cultivate.

Many scare crows were put up in this field.

Tricolored, Bicolored and Yellow-headed Blackbirds were observed feeding in the rice fields.

Returned to Maxwell at a quarter of [illegible].

October 4, Thursday.

Worked on notes and prepared some specimens for mailing this forenoon. Waited in the afternoon until the train from the South came for word from Mr. Fisher but received none.

Carpenter and I left Maxwell at a quarter past three and drove west into the foothills through Zita and Hodoga to Stonyford. The latter place has an altitude of about 1200 feet.

There was a steep grade up Stonyford Creek until I then descent was the approach into the Valley of Stony Creek.

The hills were
steep and rough and were
covered with Chemisa brush,
Madroña etc. Oaks were common
and there were many Digger pines.
Saw no brush rabbit but no
other cottontails.

Stanford is a small place in
a level open valley. We reached there
about 6:00 P.M. and stopped for
supper and lodging.

Met the foreman of this
district Mr. W. Atchison and talked
with him regarding the quail situation.
This area was poisoned thoroughly
in 1915 and remaining squirrels were
killed off in 1916. The grain was
spread everywhere but no dead
quail were found. This year Pleasant
and Valley district both were considered
[illegible] of any previous time.

Also met Mr. Stone of the Forest
Service.

A small rain came this evening

October 5, Saturday.

Was up this morning at 6:30 and
found it cold and damp with a
heavy fog over the mountains.

After breakfast we drove over to
the East Park Reservoir Bird Reservation
and spent half an hour or so in
looking the folder over and talking

with the guards. The water is low at present and the dam contains only about 40000 acre feet of water. Birds were very fairly common. I saw the following

Cormorants	20
Coot	2
Redhead	3
Great Blue Heron	5
Kingfisher	1
Western Grebe	1

In addition Say's Phoebe, Rock Wren and Flicker were observed.

I was told that Cormorants nested in dead trees in the South end of the lake and that ducks and a few geese came in here during winter. I walked out on the dam but made no attempt to work around the lake. The long arms of the reservoir reaching out among the hills were entirely dry.

Returned then to Shoshone and drove up through the hills ten miles further to the Mill Creek Ranger Station where I saw Mr. Atchison again. The air had cleared in the meantime and the sun was out.

No squirrels were seen at all during the entire day. Mr. Atchison repeated his statements of yesterday and said that they had a great [illegible]

grain beyond the Ranger station
where quail were common without
decreasing their numbers or
finding any dead birds. We
saw four coveys Valley Quail
on travelling through Ind.
This area is traversed by a
mountain road much used by
campers in summer time and
Mr Aitchison stated that the
majority of them had shotguns or
small rifles with them. It was
his opinion that many grouse were
killed by these outfits Valley were
camp fires in travelling along the
roads.

Returned to Stanford at one
O'clock dinner and then went on down
Stony Creek returning to the junction
Grade by another route that took
through a hilly country well
covered with oaks. I found no
covey of 75 Valley Quail along the
Creek.

Rain had been heavier here and
we had to use chains in order to
get up one hill.

Returned then to the Valley
reaching Maxwell at six.

I found this coast range country
a pleasant one with many birds
and regretted that time did not permit
a visit to the higher lands of

Snow mountains
spent the evening & casing
for a few specimens out in the valley
Shot 6 mallards.

October 6, Sunday.

This morning Carpenter and I visited several creeks along the trough on the outlook for town ducks but found none.

At the Knucks ranch near Colusa I examined seven ducks that had been killed there in the rice fields that morning. All were poor and thin and I judged that they had just come in & took the stomachs from them.

Examining the trough here we found about 15,000 to 20,000 Spring on it.

Drove South of Colusa and then returned to Colusa for dinner.

Returned to Maxwell about four.

Packed up some things to send in to the office and replenished my baggage.

Oct 7. Monday.

Left Maxwell this morning via S.P. at 8:30 and reached Sacramento at 11:00. registered

at the Capital Hotel.

Went to Jacobsen's office and secured my mail & and then called at the office of the Fish and Game Commission & Chief Law Mr. Geo. Neale. He said that "Cripples and dead birds" had been found on the grounds of the Sacramento Outing Club and I will cause gun Club Grounds on Sunday. Two dead and one live Spring had been brought in and the two dead birds sent to the University. He kept the live bird bird acct up and examined it. It had all the symptoms of alkali poisoning. I will arrange to visit these two gun clubs Sunday this week.

Called at the Pacific Rice Growers Association office and saw Mr. C. H. Merry.

Oct. 8, Tuesday.

Left Sacramento via S.P. at 8:15 arrived San Francisco at 11:30. Had dinner and then called at the office of the Fish & Game Commission. Talked duck matters and reported matter of county ordinance in Colusa County.

Went next to the California Fruit Co. They have sold 67 shotgun duck stamps this year. Mr. Stokes

for 200 dozen from one man and 100 dozen from another that they were forced to cancel as their factory is out of commission.

Went visit to the Radoff Sales Company. Their sales of black powder have amounted to 37 tons.

October 9, Wednesday.

Took canvas bag down for repairs this morning. Also shotgun which needs a new spring for firing pin but was unable to get the parts fixed.

Met Dr. Fisher at 7:30 and spent forenoon and afternoon with him. Was out Orgais in the afternoon.

October 10, Thursday.

Went this morning to Berkeley at 8:00 a.m. with Dr. Fisher and visited the Museum. Saw Bryant and learned that he had done very little on his visit to the rice fields on the east side.

Called on W.J. Mortimer at Shattuck and Center to Berkeley. This gentleman with his brother J. Mortimer are interested in a tract of rice in Fresno County near Dos Palos. Early in the season they had considerable trouble with duck but shot them out and got rid of

them by means of guns and bombs. They have a tract of 1000 acres but will not raise rice next year.

J.E. Armstrong a neighbor has 1500 acres of rice in ~~Kings~~ Merced county. There is also a small tract of rice in Kings county.

The mosquitoes ~~that~~ has all kinds of ~~bit~~ us that there are many fine potholes in the rice. The area adjoins some sloughs that harbor many ducks and pintails came in to feed in the open holes in the rice.

Returned to San Francisco at 1:00 and had lunch with J. Maillard at the Bohemian Club and spent a pleasant hour afterward.

Returned to the hotel and worked out an itinerary and then wired the office. Packed my baggage and had it checked to Lick Oak.

Met W.K. Fisher.

October 11, Friday.

Left San Francisco at 7:20 A.M. via Southern Pacific. Saw several Porpoises in crossing on the ferry and two seals. Many Pintails in sloughs along Suisun Bay.

Reached Lick Oak at 12:53 P.M.

Saw Mr. Cooper. He says that ducks are doing not as well as last year.

they like corresponding ponds west of this one. Blackbirds came in and I stuffed nearly 100 bundles of rice for bait on a field that had been cut. The blackbirds are erratic in their flight and come only at intervals. We drove them out by shooting.

Very hot in bird bak today.

Left him Oak with Ricketts in a car about 6:00 and came to the Sacramento Outing Club reached there at seven and was given quarters by Chas Ralston Kuper.

Was out until dark watching flocks of White-fronted geese that were flying about.

Comparatively few ducks were seen. Most gunners seem quite bad.

October 12, Saturday.

Was up this morning at 6:30 had breakfast at 7:20. A slight fog came in but soon cleared away.

About 3000 White fronted Geese came in from the south after daybreak and alighted in the fields beyond us and there was also a small flight of Pintails.

When the sun came up a large flight of Tricolored Blackbirds came in from the South and passed steadily to the north

Small flocks came at first and then waves of Blackbirds flying abreast in long lines. They were followed by a long procession that in turn gave way to flocks. There were between 5,000 and 10,000 of the birds.

After breakfast Roberts and I drove down a creek to the water and then went out in a boat returning at 3:00 P.M.

There is a large area of water here covered with clumps of Tules and from six inches to 4 feet deep. This extended a mile and half to Pacific Coast and is 10-20 miles long. Thousands of ducks and geese harbor here.

Last Sunday Several dead and helpless birds were picked up here and on the Islands of the Wild Goose Gun Clubs. It seems they were trying out to be helpless near shooting and nice fields while others believed that the birds had been poisoned in the rice by growers who wanted to get rid of them.

We came across a few dead birds and some helpless ones almost at once. Examination and Post mortem gave all the characteristic reactions and appearance of poisoning from alkali.

The birds most affected were almost helpless. They were unable to move but reacted with flapping wings prostrate on the breast. The legs

were predominant from swelling of the Harderian glands and there was a discharge of mucous that clogged the Choanae. Marked dyspnoea was evident. Many were barely able to support the head. Birds were killed with ether for examination. The first one was rather thin in body. Gizzard empty or with small amount of food. Lining was slough[illegible] of intestinal tract, especially duodenum. Capillaries in villi all distended. Caeca filled with partly digested blood. Anal sphincter relaxed.

Eye reflex slow, partial or completely paralyzed

One bird examined had the crop and stomach partly filled with seeds of Echinochloa and green rice. In this case I judged that there was paralysis of the stomach muscles as the intestine was empty. This was apparently a fresh case but with the exception of one or two others all seemed to be of old standing so that I judged the trouble to be about over.

In one area where the water was very stagnant I saw two or three birds that had been in the water apparently for a number

Ducks and Coot [illegible] the first [illegible]
paralyzed. In these the feet, toes and
legs were swollen and the skin
[illegible] apparently from soaking in
this bad water and poor circulation.
The following dead birds were seen

Pintail	106
Cinnamon Teal	3
Mallard	5
Wigeon	4
Total	118

Living Birds.

Pintail	25
Wigeon	6
Mallard	5
Total	36.

The trouble is without question
poisoning due to alkali. The water
here although is fresh and good and
is the floating ground of these ducks
which fly off to feed and then
return. The alkaline water causing
the trouble is second on these finding
excursions. All sick birds were
found on the areas where large
numbers of other birds were gathered.
Areas not frequented by well ducks
were practically free of sick or dead
ones. and the trouble cannot come
from these immediate marshes as
Coots are abundant here yet none
were sick. The birds get the poison
at a distance and coming in here

to rest are taken sick, as the water is fairly good most of them get well. I saw probably 75 that I were noticeably affected yet were able to fly. Friday the trouble which I still am finding an began a week or ten days ago. ice. About the time of the last rain. This rain and the drainage of rice for the harvest has put fresh water over many Cow & Alkalin spots in which these birds like to feed.

Some have reported that the trouble is anthrax!

Saw hundreds of geese this morning and had fine shots at them as they were tame. Pintails and Mallards very common but have lessened in number. Saw one flock of 18 Red Decks.

Returned to the gun Club at three and put my Decoys in shape.

Now the following local names.

Cackling goose
Ruddy
Spoonbill
Coot
Gadwall
Gallinule

Greaser, Big Mexican
Rough head.
Salt Water Mallard.
Inky Chicken
Gleeson duck
Redhead
Rail

October 13, Sunday.

The Blackbirds and geese came in this morning as described yesterday.

Went out at eight and remained on the water until two in the afternoon. There is an open basin here in front of the Sacramento Rowing Club which has a sluiceway and many broad bays. Many sick ducks drift down with the current from above and stop in here so in all probability the majority of the sick and dead birds will be congregated here. There is one place through which the water comes rapidly and we found about 25 birds that were more or less affected come down through this from the field and club grounds.

There was little of interest today. Saw fifteen dead birds, mainly Pintail and a few Mallard and one Spoonbill and about 40 living birds some of these seriously affected. None showing any thing with the cholera.

Bernard Peters came in the morning and helped straighten up the place and boats. Several times the pintail ducks passed directly over my head. On one occasion there was a flock of thousand geese and as many ducks passed me not more than 30 yards high.

W Bryan Sandhill Bros. came down early over home.

Returned to the Clubhouse at 2:30 and packed up.

Rabbit among pines is thick this year but the cottontails are crippled. Lot in the nine fields we [illegible] they have been poisoned.

Considerable hunting is going on in the Moulton tract across the river.

Ricketts came for me at 3:30 and returned to town.

We caught J. Haugh a rancher shooting on Hobby Stubbs. Watched him for an hour with binoculars and then drove him north two miles. Then arrested him.

Reached home at dark.

October 14, Monday.

This morning Ricketts and I went out to see Haugh and brought him for a justice court trial in Simi. At which he was fined $25.

Drove to Fillmore in a car for Fiddler. Had dinner here and talked with Mr. Crum and T. Hutchins. Bucks are reported bad on Kings Plain.

Drove with them to Nelson and out to the Hodge Land Company office (General Headquarters).

I had wished to see Mr. H. C. Jacobsen but found that he was absent in Sacramento. Talked with

A. M. Burton.

Their damage last year amounted to $50,000 the conservative estimate (this is reliable) but so far this year they have had little trouble. There has been but the last two nights one duck have been coming to our field my home ranch but have been driven out by herding.

They have one ~~searchlight~~ to use but do not have had no reason to use it. Them. These have a small engine a generator and a searchlight attachment that with these a strong beam of light a distance of half a mile.

From the testimony there and all other accounts ducks are not nearly so bad as they were last year. Last season was very dry year and ducks were in much larger numbers than this year. The rice fields ~~found~~ found the best places for the ducks to feed and it was very difficult to keep them out. It is doubtful if there will be that combination of circumstances again for some time to come. The early rains this year have put in much water in the country and food is abundant over

and the ducks have abundance of feeding grounds outside the rice fields.

Met Mr. C. M. Hobart who said that he had lost 50 acres of rice last year.

Returned to Live Oak at six with a light rain falling.

October 15, Tuesday.

Packed up a loose skeleton this morning and forwarded it by express. Repacked my outfit.

Good rain last night and more today.

Left Live Oak via S.P. at 12:30 P.M. Changed at Tehama and arrived at Willows at 4:30 P.M.

Saw Mr. Cathron here and talked with him.

Spent most of the evening in talking with Mr. W.T. Wilds who is expert on rice matters. He appeared himself as much pleased with the way the duck matter had worked out and said that he had heard no complaints from anyone.

He considered the Blackbird situation a very serious one and wished that some means of controlling it might be found. He has tried bird cartridges in

the San Joaquin but does not
think the country invited for
it.

October 16, Wednesday.

The shooting season opened
this morning and burned a
great bang[illegible] south of here at
Hay[illegible]. This morning.

I met Mr. Ben Inman and he
said that birds were beginning
bad again. His Chinaman shot
14 yesterday. The birds did damage
at Bellmeisters night before
last. That hens were very bad.

Worked up notes and ran
official report all the afternoon.

At one I hired a jitney
and drove south to D'Egilberts
Ranch Mr. D'Egilbert was in town
but I remained on the place until
about four looking through the
fields.

The rice was all drained and
cutting was going on. The method
followed in shocking here did not seem
to me very good as to me. Men followed
the binders and simply set each
bundle on end giving the top
a slight twist to spread it open. The
bundles were set up in rows with
no attempt to form a compact shock
or to place caps of sheaves over the
tops. As the bundles stood they

were pulled or pushed down by a slight touch. While the filled heads hung down in a circle all around within a foot of the ground. In case ducks came in to feed here they would almost certainly pull the bundles over at the first touch of the hanging heads and then the entire shock would be at their mercy. Other ranchers near by handled their rice as they do wheat putting eight or ten bundles in a shock and capping each shock securely.

I examined a considerable area here to see how much sweet rice is shattered. Occasionally heads are put over and these are cut off and left behind. A few kernels loosen when the bundle is dropped and the jar with which the shockers set each bundle in and loosened more. There is worse shattering too when the bundles are loaded into wagons. The butt ends of the bundles also loosens considerable. But all this is an abundance of rice left on the ground.

Returned to town at four and met Mr. D'Egilbert in the hotel. He expressed himself as well pleased

with results of 200 acres here.

Talked this evening with Mrs. Riley and he also found fault with the manner in which the rice matter had been handled. It is very well to read rice matters. I talked with regarding Volunteer rice & thing that has been puzzling me. I stated that last spring here was so cold that Volunteer rice did not sprout early but that it came up later with the sown rice and so was overlooked which explains why so many claim that there is no volunteer rice here. He plants from 65 to 75 pounds of seed to the acre.

Packed up and prepared to leave for Klamath Falls, Oregon. As I was going to the train Hawkins came to send with a report of sick and dead ducks at the Lee Ely east of Norman. The birds were thin. The birds were crippled & somehow in the rice fields or that they had been poisoned by rice growers. Because of this it seemed best to delay for months and investigate.

October 17, Saturday.

Went out this morning at 4

in company with the hunters
were Wed I started the next bird
We drove east of Norman to
a point below Pleasant where there
was a ferries I boys to making
the northern end of the drive.

At daybreak a great flight of
pintails came over from the west
and northwest. The birds passed
in swiftly flying irregular lines that
were like men up into companies
like soldiers. Line followed line,
all packing with a rush of
wings until in the aggregate 250,000
birds must have passed. All were
passing southeast toward the
Sacramento River from 80 to 150 yards
high. These birds on that
day great have been feeding
in rice. We examined the stomachs
of seven pintails killed by hunters
and found five filled with rice.
The others contained water grasses
seed and similar material. One
hen winged Dec 2nd out of eight
examined had eaten rice. The
stomach of a female canvasback
probably 1 mile distant was
empty save for the remains of
seeds of Potamogeton pectinatus.

I remained there with the hunters
until dawn When I went in to
Willows, returning in a hired auto

leaving willows at 12:45 and returning at 6:00 P.M. So that the entire day was spent here.

The area where sick birds was found is an old area of the northern end of the drought that has never yet dried up this year. The sick birds occupied mainly about one pond of about 125 acres that receives drainage from rice fields around the shores of this pond the two bodies of about 2000 sick birds and perhaps 500 individuals that were still living. Examination of these revealed that the trouble was due to poisoning by alkali. The soil here is strongly impregnated with alkalis which after the rains that have come has risen in many areas as a white efflorescence. The alkaline deposits in these low areas has in addition probably been increased by water leached from the alkaline rice lands which drains in here. From examination it seems that there have been two outbreaks of the trouble. The first apparently came with the heavy rains of September 12 as dead found a small number of sick skeletons, perhaps 100 [illegible]

were frequently about that old. The second outbreak had begun about the week ago and was still under way. The majority of the birds had been affected at this time. There had been a rise of six inches in the water level due to rain and drainage water from the rice. Since then the water had receded leaving a band of slick alkaline mud in which lay the sick birds.

The majority of the ducks, probably 75% were Pintails. Most of the others Green-winged Teal. Perhaps 5% were Mallards, Wigeon and Spoonbills. There were many coots on the pond but none were affected previous to the trouble. When the birds were feeding in shallows near the dead coot was seen but it had been wounded by a gunshot. I found no affected Pintail and the least Sandpiper.

A dozen birds were dissected and I found all the typical appearances of the duck sickness. The external symptoms, eye reflex etc were all present.

Two Pintails were seen that had the membrana nictitans swollen so that it nearly covered the eye.

One bird examined had gravel projected from the gizzard into the proventriculus by unusual circumstances. Several helpless birds examined had the cyclids partly closed. When the birds were opened and the eye exposed to strong light the usual dilation and contraction within narrow limits of the pupil was very peculiar. The muscles contracting the eye were entirely paralyzed in affected birds.

Post mortem showed the usual irritation of the intestines with thickening of the investing walls and much partly digested extravasated blood in the caeca. Cloacal swabs from living birds the anal sphincter was relaxed.

The last outbreak here probably has been more severe because of an influx of flight birds unaccustomed to alkaline waters.

The alkali here is peculiar in that it seems to contain little sodium chloride. This compound at least is not evident to the taste. Shallow skims of water and the bottom covered with white crystalline efflorescence indicating presence of deposits of the gums Rhamnaceae.

Of particular interest was the

unable to fly and that had the eye reflex slow and inactive.

Two dead eared grebes were found and later a living bird that was barely able to support its head. It exhibited marked dyspnoea and had the wings hanging loosely from the side. The nictitans was completely paralyzed and there was a marked exophthalmos of the eye. Marked diarrhoea.

Hunters were inquiring about the birds. Many feared that they had had anthrax which was very prevalent among stock while others thought the birds had been poisoned. I saw three birds that had been shot and abandoned. Other hunters were about in the grass away from the pond in front of shooting birds that were able to fly a few feet and bringing the wounded or the helpless birds added them to their strings.

There were many birds slightly affected. They were swimming about in the water. These did not fly high and were noticeably slow and weak. Some of them showed a peculiar crook in the neck in flight.

Left Williams Lk ~~$8.00~~ $10.00

P.M. and reached Yreka at 12:30 A.M. Stayed here a while and bought me eight ducks 7 Hazing and a Teal & Sent them over to Mr. Pierson at this ranch for Oration with fresh water.

October 18, Friday.

Left Yreka at 6:05 A.M. Converged a rolling country in many places very high and rough. Reached Weed at 1:30 and remained until 3:30 This gave me an opportunity to climb the hill above town from which I had a fine view of Mount Shasta. The upper portion was entirely covered with snow which a strong wind carried in swirling clouds across the higher slopes. I collected a few birds from Yreka.

Birds were very scarce.

Arrived at Klamath Falls at 7:30, took a bath and turned in at once.

October 19, Saturday.

Looked up Warden J.J. Tucker this morning and made arrangements to go out to Lower Klamath Lake where the duck birds

tomorrow. Did some errands and had a tooth filled. Worked the remainder of the day on correspondence & notes. Beautiful day & clear & calm.

October 20, Sunday.

Was up early this morning and walked out over a ridge called the hogback to some pines and fir timber. From here I had a fine view of Mount Shasta and the Lower Klamath country.

Birds were not common here but I collected several and then returned to town.

At noon with J. A. Tucker I went in an auto to the Lower Klamath Lake where dead ducks have been reported. Went to the ranch of Evan Heffy. The water from Klamath River has been shut off from this lake last year and the lake is being allowed to dry up with the idea of reclaiming it. The water level has fallen 8 or 10 feet and the great tule beds are entirely dry.

Water still remains in the central part of the lake and the body is a mixture of mud and ooze 8 or 10 feet deep, a thin slimy mass that is in a fluid condition. The tule beds have formed a growth over this

their roots forming a solid mass that has grown and accumulated until it is ten inches to 4 feet thick. This is strong and solid so that teams can be driven out onto it but at every step it undulates like "rubber" ice. We drove out some distance on it in a Ford car.

Large areas have been burned over this and other tracts have been cut in order to utilize the tules as wild hay. It is proposed to harvest the tule buds when they get sufficiently dry.

Ducks were reported here from ten days to two weeks ago. We found bodies floating in the water all along the solid front of the tule beds. An estimate of a mile was at least 500. All were badly decayed and were too far gone for examination. About 3/4 of the birds seen were Pintails, the remainder Teal. One Mallard was noted.

Examination here was difficult as [illegible] in working along the front of the tule beds. We got out at a number of places in imminent danger of breaking through and finally traversed the area in a boat. The water was

Lonely as a Cloud. The wind in many places had formed a crust on the surface and the wind had broken it to bits.
left Klamath Falls 1:00 P.M.
Returned 6:30 "
Distance traveled 30 miles.

Feb 21, Monday.
Forbes had business this morning that detained him in town so I decided to go up in the hills back of town again to get some mammals skeletons for our reference collections and to look around a little.
Went up over the Hogback again. There is a long canyon there wooded with fir and pine that had a number of birds in it and after spending this I went on around to a high ridge to another tract of timber. Much of this had been logged off but I found one small tract that had not been touched. Ceanothus Rhamnifolia and Berberis were common as undergrowth. I looked for grouse but could find none. I collected a Pine Squirrel and saw many. They are apparently breeding. Chipmunks were common and I secured one of them. No rabbits were seen.

Was pleased to come across a band of Ute Oregon Jays.

It was cloudy and rainy all day. Returned to town at 6 p.m.

October 22, Tuesday.

Left Klamath Falls with Furber in a car at 10:00 a.m. and drove out through Miller to the South end of Lower Klamath Lake. This is the deep open portion of the Lake and I found it filled with cool clear water. Birds were common down here but there were no sick ones among them. The shore was gravelly and sandy with a narrow band of round-stemmed tules off shore. The slope down to the water was at an angle. I could see here that the water had receded about 6 feet from the normal out.

There was no trace of sick or dead birds anywhere here. We stopped at Kiard's landing near the southwest shore and I found that there were no sick birds there. A man from here had travelled along as far as the mouth of Willow Creek without finding any. Nor had any been heard of.

Apparently the trouble was confined entirely to the northern

of the L.K. near the tule lands. It was not practicable now to work out through the islands but I judged that in all there could not have been more than 10000 dead birds.

We drove steadily nearly all day and did not reach Klamath Falls until 7:00 P.M.

Received a letter from Nelson asking me to meet him in Sacramento so packed up and got ready to leave tonight.

Typhoid influenza is on the increase here.

October 23 Wednesday.

Cold and hard this morning with ice formed on ponds. Left Klamath Falls Ore. P.S. at 9:15 A.M.

Reached Alturas, Calif. about 1:00 P.M. and after eating had about an hours rest and a half. Walked out along the small crik beyond town and though it was fine country I failed to see many birds. On my return I was fortunate in seeing two white throated Woodpeckers.

Met Mr. Stone of the Forest service on the train.

October 24. Thursday.
Arrived S. Francisco 9:30 A.M. and met Mr. Nolan at the head Nest at 5:00 P.M. Discussed the rice field situation with him. Also met Cotton and Purbaugh.
Spent the remainder of the afternoon at the Pacific's office with E. W. N.
This afternoon called on Mr. Stephens & the Pacific Rice Growers Association and Frank Pawbert President of the State Fish and Game Commission.
Also saw Mr. Hecke head of the State Commission of Horticulture.

October 25 Friday.
Met O. V. Carpenter of Maxwell at the hotel this morning. He said that he had had occasion to issue only 2 permits for night shooting. This per. The situation seemed very good.
Had some further conversation with Mr. Nolan and called at W. C. Davis office.
Left via S. P. at 10:40 A.M.
Arrived San Francisco 5:30 P.M.
Because of the threat of rain[illegible] Unsuccessful to [illegible] a copy of [illegible] City Ordinance [illegible]

from $5 to $100 for visitors registered at the Wiltshire hotel.

October 26, Saturday.

This morning I remained in my room at the hotel and worked on notes and official correspondence. Am taking quinine to break up threatened attack of grippe.

At noon I crossed to Berkeley and saw Grinnell and Swarth at the Museum. looked up specimens of Zebra and some Sparrows.

Called up Dr. Evermann tonight and made arrangements to work in the Calif. Acad. tomorrow.

Every one is wearing gauze masks here now and it is rather amusing to see the different appearances made by different styles of faces.

October 27, Sunday.

Went out to the California Academy of Sciences about 8:30 this morning and worked there in the bird collection and books all day. Collection numbers about 18000 skins. 8 cases are occupied by small birds and about 5 or 6 by large water birds. The Passerine

Expense October 1-31, 1918.

Form 4	152.30
Transportation requests	95.34
	247.64

Unexpended balance Oct. 1	520.51
	247.64
	272.87

material obtained in Galapagos
Island Specimens to work up.

October 28, Monday.

This morning I called at the
Fish & Game Commission and saw
Hunter and Waterfield and worked
out a few minor points in
regard to the rice proposition. There
is still considerable feeling over
the matter.

Also saw Dr. Evermann.
Purchased ticket for Albuquerque
and packed my baggage. Spent
the rest of the afternoon in
working on notes.
Left via A. T. & S. F. at 8:00 P. M.

October 29, Tuesday.
Travel all day.

October 30, Wednesday.

Arrived at Albuquerque 5:00 P. M.
Registered at the Combs Hotel.
Spent evening at Survey office.

October 31, Thursday.
Worked today on F. & F. monthly
expense accounts.
Piper & Tigon out of office at present.

November 1, Friday.

Completed expense account this morning, certified it and mailed it in. Worked until 5 on California notes and correspondence.

November 2, Saturday

Piper arrived this morning and we batted the quail question over from various angles.

Piper stated that two dead quail had been found this summer but that they had not been examined by the assistants finding them. Doubt existed as to the manner of death.

Piper suggested that it might be possible that the lack of action of strychnine in Gallinaceous birds might be due possibly to slow assimilation so that the poison was taken in gradually. This however hardly seems probable though of course it is possible.

Piper has seen no poisoned individuals of the domestic pigeon though he has seen these birds on one or two occasions feeding on poisoned areas.

Neither has he found dead buzzards though he has looked for them in their roosts and elsewhere when they have been feeding on poisoned animals.

young turkeys up to individuals
1/4 grown are readily poisoned.

Piper suggested that possibly
the diet of assimilation of
strychnine in gallinaceous birds
might be due to tannic acid
derived from leaves, etc, eaten
by the birds. This seems hardly
probable however as domestic
fowl eat largely starchy foods.

It is strange however that
that young birds of this
group (quail) largely or entirely
~~regardless~~ matter are poisoned
as they grow older the
change to a vegetable diet
and are then immune.

It is commonly stated that
the Blue grouse is affected by
strychnine but Piper was unable
to substantiate this from personal
observation.

While working at San Juan de
Capistrano Piper put out grain
corn wet from the tub and
sprinkled with strychnine and
sodium bicarbonate. This killed
11 chickens. At another place
one hen came every day for an
entire summer and ate grain
(poisoned) from the mixing tubs.
She became affected after a
time so that she just sat

74

walking but continued to lay steadily and was seemingly uninjured.

Rattlesnakes are said to be killed by ~~[illegible]~~ eating poisoned ground squirrels. These snakes also die quickly from strychnine placed in the open mouth.

Some tests made should be tried with both alkaloid and sulphate.

When strychnine is treated with warm sodium bicarbonate solution it becomes coated & finally changes. If this solution is filtered and the residue dried it is found to be an amorphous powder with little or no taste but is still actively toxic.

Nov. 3, Sunday
Left Albuquerque, N.M. via A.T. & S.F. 8:55 P.M.

Nov. 4, Monday
Arrived Lawrence, Kans. 5:00 P.M.
(On annual leave Nov. 4 to 24 inclusive)

November 22, Friday.

left Lawrence via A. J. & S. F. 8:25 A.M.
Arrived Kansas City Mo 10:00 a.m.
According to available time table was to have left via Mo P. at 11:15. Found however that the schedule had just been revised and time on this train changed to 1:15 P.M. Walked over on Grand Ave and visited Loesto Bird Store. Very clean & well kept. Had a good stock of Canaries.
Delayed in leaving K.C. but finally at 1:30 P.M.
Arrived St. Louis, Mo 10:15 just two Cats to make Connections for Little Rock.
Registered at Pontiac Hotel.

November 23, Saturday.

left St. Louis via Mo Pac at 9:05 A.M.
Because of a wreck had detoured at Bismarck Mo to Delta, Dexter Jct. and then back to Poplar Grove.

November 24 Sunday.

Arrived Little Rock, Ark. at 12:10 P.M.
Registered at the Marion.
Fine clear cool weather here.
Saw Ray Tripp and Jim Veatch here.
Called up E. V. Vicart and made an appointment to meet him in Hewitt Monday night.
left Little Rock, via St. Louis

at 3:10 P.M. Full colors are out of here.

Arrived at Kinder La. at 7:35 P.M. After a long dreamless ride.

Registered at the Sparks Hotel.

Many duck hunters in this country now.

Will Cook told me that Park Moses & Morton are having trouble with thieves in their rice.

November 25, Monday.

Was unable to get my baggage from the depot until 10:30 this morning. Worked until then on notes and correspondence.

Opened my chest when it came changed clothes and went out at once northeast of town along little bayou Bayou.

The sun shone this morning but the sky clouded over almost at once and turned cold. The temperature apparently about 38° 40° with a strong north wind.

Comparatively few birds were moving.

The summer here as at Lawrence Kansas was extremely dry with heavy rains following in the fall. This condition I am told has retarded the rice harvest.

The season is noticeably later here than at Lawrence. Many trees

still retain their leaves and a few oaks are even green. The color is many of the leaves falling from sweet gums and tulips. It is beautiful. Some are yellow and some are beautiful dark red.

Bad The vegetation has not been killed down. I was able to gain a much better idea of what is here than on my previous visit last December. The bottom timber here is made up of ~~beech~~ willow and lake, 3 kinds oaks, tulip, sweet gum, sour gum and elm. I saw at least two species of smilax. Collected the following

1
2
3
4

The day was cold and raw and birds were rather inactive. I saw comparatively few until I found a sour gum, 50 feet high with the top filled with berries. Robins and 7 kites came in numbers and with them many Rusty Blackbird. A Pileated Woodpecker came twice to feed. I watched this tree for an hours and a half and noted the following eating berries

7 kites many
Red bellied Woodpecker one
Downy Woodpecker one
Pileated Woodpecker one
Robin many
Bluebird several
Hermit Thrush one
Rusty Blackbird flocks
Cedar Waxwing several
Juncos 12 or

All these birds seemed nervous and afraid of hawks as they darted out at the slightest movement.

A flock of considerably fewer Bronzed Grackles from the east in the morning. Only a small flocks of Pelicans and Ducks passed over to the west in evening.

No ducks were shot but all end hunters report them as not yet common. Mob are said to be coming in now however.

A heard rumor of damage by ducks in the Pk. Moore Place and at Moultrie.

The summer here was extremely dry and the fall wet. Weed seeds seemed to be rather scarce. Comparatively few finches were seen noted but it may be that they have not come from the north yet.

Saw very few acorns also though some say they are abundant elsewhere. Only the Blue jay seen.

Met Mrs. E. V. Viser at the hotel in the evening and talked with him until 10:15. He reported no damage by ducks as known to him.

November 26, Tuesday.

Cold and raw all day today with some rain and a little sleet during the forenoon.

Secured what information I could around town in regard to the rice situation.

Mr. Kennedy in charge of the Southern Rice growers office said that the association was not in charge of the selling this year and so was not in as close touch with the growers as in other years. He had heard of no serious complaint save near Marvell & Lake. Town are about 173,000 acres of rice in the state grown in Arkansas, Lonoke, St. Francis, Pulaski and Prairie counties. The season has been satisfactory because of drought during summer. Fall rains have retarded the harvest until at present about two-thirds of the crop is still in field, a part of it yet uncut. The increase in acreage has been considerable this year. A shortage of labor has also contributed to delay in harvest, threshing machines are still too few for the acreage & rice and bad roads have made it difficult to move them.

The last rain has stopped practically all cutting, Mr. Pearson last seen in the evening however that he was still cutting with a Fordson tractor.

Made inquiry of a number of men and heard report of slight damage at Park Moore, the Stanton place and Marvell.

Experienced much difficulty in hiring a car but finally secured one at

noon.

Started out to see Park Morris but met him on the road. He said that he had experienced no trouble this year with ducks but that blackbirds were very bad. Last year he was unable to get the damaged rice out of the field so that the birds got it all.

Went next to the Merrill places southeast of town 5 miles. Mr. Merrill had in 315 acres in rice most of which was still in the field. Ducks began to work in one part of his fields 4 days ago and we went down to examine that area. Water was standing everywhere in the fields and the whole area was very attractive to ducks. The birds had been working in about 20 acres but as yet had done no serious damage. They had confined themselves to working around the bases of the shocks taking what grain had fallen or heads that hung down, stripping them clean. I estimated the damage on 20 acres at about $5 an acre. Trampled places were noted around the bases of the shocks and Mallard feathers and duck droppings were scattered about.

Ducks were still working in this section. We saw about 300

drop in the area I was born sick about 3:30 in the afternoon and small flocks kept coming in from the southwest to circle the fields. A few scattered birds were flushed from the stubble. Or might come a considerably larger flock, all Mallards flying from the southwest and disturbed only that.

We called in several flocks and shot them. The majority of the ducks seen were Pintails.

There was a considerable tract of smartweed here, a small area that had lodged and was now flooded with water from the grain stripped by ducks.

At dusk the ducks began to congregate in another open area and continued to gather here until 2500 or 3000 birds were present. Their clabbering and quacking was readily audible at a distance of a quarter of a mile. Other birds could be seen circling the fields at dark.

Men were shooting at several points in the fields and ducks seemed scary, flaring up at every shot. No systematic effort to drive the birds out.

Three birds that I examined

were in the thin end a bunch of 20 that I counted in the morning were all in the same condition.

Rebels stated that Blackbirds were now very abundant in the swamps and bayous.

A estimated number Blackbirds seen today at 5,000.

Blackbirds were very abundant. I identified Boat-tailed Grackles, Redwings, Cowbirds and Rusty Blackbirds. The former were more abundant than any others. An enormous flocks flocks of two thousand or more were gathered on the shoals and were feeding on the grain. On the evening flight passed over I counted the least that must have numbered at least 20,000 the majority of which were Quiscalus. The number of Blackbirds seen during the day must have been at least 35,000.

We had some engine trouble and were stuck in the shallows so that we did not reach town until eight.

November 27, Wednesday.

Sky still overcast this morning and a raw wind blowing.

left town in car with E. V. Visart and drove out south of town. Grain is much rich still in the field here and some still uncut.

Met Mr. B. E. Chaney and Mr. M. E. Sutters and they told me that ducks were beginning to work in their fields but that the loss had not yet been heavy.

Heard of trouble in two other places but was unable to get to them.

A number of men whom we met and questioned had had no trouble.

Saw several threshing outfits one of which was running. The roads are so bad that it is difficult to move the separators about.

Saw large flocks of Bronzed grackles in the field and many Cowbirds, Rusty Blackbirds and a few Redwings. The Bronzed Grackle seem to be so numerous now as all of the other species put together. Saw many large flocks and one long line of them. Probably 20,000 of this species and as many of other birds this sun. The birds flew in and perched in groups of 6 or 8 to a dozen in the trees and began to

nice to shoot at the rice. They seemed rather wild and were somewhat difficult to approach. At times they flocks spread out and fed on the ground picking up the shattered grain. When I shot one bunch about 100 returned and flew over the fallen birds scolding excitedly. I saw no one out shooting the birds.

The damage by blackbirds will be more distributed this year so there is no such rice crop. It would be considerably less and found scattered heads partly eaten out but much rice in head that was still untouched. This is different from the condition last year when all the ripened grain was stripped.

According to usual milk damage by ducks ~~begin~~ about Nov 1/22.

~~Bought a lunch~~ Crossed Mill Bayou on a levee and bridge and ferried a stream 20 - 30 feet across with trees along the banks and in the water. Did a little fishing. The water had spread out through the woods so that this is a fine extensive swamp region here.

Bought a lunch at noon at a small store.

About 2:00 we drove down through

The woods towards Jacobs Lake and shot a few Mallards.

Started for home at 4:30 but did not get in until about 8:30. We stuck 5 times in a distance of seven miles in some bad mud holes. A heavy rain began to fall about six and continued for half the night. Thunder and sharp flashes of lightning accompanied the storm.

Bird List.

Mallard abundant
Pintail in numbers.
Pileated Woodpecker one seen.

November 28, Thursday.

Drove out to this morning to Jacobs Lake leaving town about 9 o'clock. A party of duck hunters accompanied us and we helped one another through the mud holes when our cars stuck. We left town about nine and had quite a time getting out so that we were at Jacobs Lake about the afternoon. The day was cloudy and fair but the roads very bad from the rains of yesterday.

Visited and hunted with the gentlemen Mr. Bracey from Little Rock. I went out to shoot and did not with them for a time. They had no waders so were able to get out in the water

further than I could as I had only a pair of hip boots. My colored boy Vard remarked that "those boots fits suited me, with their tall tops".

The country we were in was typical lowland swamp country. Water spread out through a jungle of cypress and tupelo gum. It was just deep. Beyond the trees was a marsh some of open water but frequently thick bushy woods and all were rich with bird life. The swamp woods was open in the main with little undergrowth but many floating logs. Others were submerged and in wading it had to take care not to stumble over them. Mr. Bracy caught his foot in a cypress knee and fell flat.

The swamp was bordered by higher ground grown with white oaks and live oaks willows and cane and was much grapevines. It was a paradise of Nature's Loaded with fruit. Passed several areas where there were fine heavy growths of willow-leaved oaks. As fine shag bark hickorys were seen. Many Mallards were flying and several bunches were jumped

down as they passed overhead by Mr. Vaught who is an expert with the duck call.

(R. Oct, Pekin, Ill. manufactures a good duck call.)

The birds circled overhead two or three times and then setting their wings came sailing down through the tree tops. All were in fine plumage and 3/4 at least were drakes. Often the leading birds dropped down into the water and sat there though we had no real concealment. Then the trunks of the trees against which we were leaning. It was a new experience to see Mallards in the woods this way. When we thought they were below the tree tops they came circling down again, and how they spread the wings.

A shot six Mallards and a Ring-necked duck and then went on leading the others to drink.

A second large flocks of Mallards came through the woods resting on the water or feeding on acorns and food that was floating in the spring water. Mark walked out on floating logs

when they stood in lines resting, fishing or preening. I examined the droppings and found them in the main to be composed of rice hulls showing a few were the remains of mast. Several birds shot had their crops filled with rice.

About an hour before dusk a flight began and the ~~woods~~ swamps and continued until it was dark as the birds passed out to feed in the rice fields. Nearly 10,000 Mallards passed in this time all headed in the same direction they came in lines and small flocks chattering and quacking as they flew. I saw watching this I tried to gather some idea of their numbers. Often flocks circled in and settled in the woods to feed, as ~~that~~ the ducks both feed and roost in these bottoms.

I found ~~the~~ birds present in fair numbers but not abundant. It is probable that there may be more later as this is excellent shelter here.

Acorns were scarce in the areas that I have examined over the most of the swamp oak which is fairly abundant.

I wanted to collect a few Rabbit Rat or a Muskrat and was fortunate in seeing several and shot a female. The animals were found there. The water color Rallying in some in leaves Lodged against fallen brush. There was no extensive trackfields so that cover was scant. The animals lay close so that I walked up and looked directly down upon one when it jumped out. The animals have a long heavy body and short legs with scant fur on the fat. They run low and do not spring as high as a Cottontail. They are heavily muscled muck rats so that a cottontail and are tough and hard to kill. The one with had milk in the mammae.

We were here until six and then off for town. Were stuck twice and finally had to get a team to pull us out. Reached town at seven. Had a roast Mallard for supper.

This bottom would be an interesting place to collect. Mr. Hurst lives at the edge of the swamp and accommodates hunters.

Nov. 29

Dr Dehart cleaning up & working on notes

Dec. 3

Returned to Washington via Stuttgart where I rested with Kid men, Nov. 30
From there to Mesa, Dec. 1 on a branch of the Rock Island and then to Memphis on the same route.

From Memphis I went direct to Washington via the Southern arriving Dec. 3.

Expenses Nov. 1 - Dec. 3, 1918

Transportation requests	101.03
Form. 4	86.80
	187.83

Amount available Nov. 1	272.87
expended	187.83
Balance.	85.04

1918

January 14, Monday.
left Washington via Washington Southern at 9:00 P.M.

Jan. 15, Wednesday.
Cold and sharp cold night and cool but pleasant today. Came South via Atlantic Coast Line through Charleston, S.C. and Savannah, Georgia. The main [illegible] was in the Carolinas. Main crop was [illegible] Spanish moss hanging [illegible] was the [illegible] pine. Large areas were given to cotton, [illegible] Crops. [illegible] [illegible] [illegible] [illegible] about the [illegible] [illegible] labor. [illegible] [illegible] [illegible] [illegible] [illegible] Charleston [illegible] Charleston [illegible] [illegible] [illegible] [illegible] [illegible]

Woke Sunday [illegible] with the
sky overcast and rain threatening.
Before leaving Washington I called
at the Fish Commission to learn
the address of F. A. Williams Shell
Fish Co. saw in Florida and
was told that he was in jail in
Tampa however I was unable to
locate him and finally learned
that he has his office in
Tallahassee. This took practically
all the forenoon. Purchased a
ticket for Jacksonville via
Atlantic Coast Line. After lunch
I packed up, paid my room
and checked my suitcase at the
station. Had about 3 miles to walk
so walked across to South
Jacksonville along Riverside Avenue.
There are some beautiful homes
along here with fine views
of the river & numerous live oaks.
Walked down to the pier on
the St. Johns River and waited
for nearly two hours. Many
Ring-billed gulls out here.
left Jacksonville via Atlantic
Coast Line at 5:00 P.M. The
country toward Yulee was
level with patches of long-leaf
pine, that [illegible] in which all the
big timber has been cut off. The
soil is very sandy and [illegible]

scantily covered with grass, [illegible] and [illegible] and low scattered bunches. Frequent fires apparently recently killed off much of the undergrowth. Several of these fires were then burning. Saw a few Sparrow Hawks, Pileated Woodpeckers and Mourning Doves.

Arrived at Gainesville at 8:30 P.M. and put [illegible] at the Arlington House.

The striking thing to an outsider in Jacksonville was the sound of Mockingbirds which could be heard in the residence section.

Jan. 17. Friday.

Cloudy overcast with rain threatening this morning.

About 8:30 walked out to the University of Florida about 3/4 of a mile from the center of town. The campus here is level and the campus is broad and spacious. There are several buildings on the campus but I understand that the enrollment here this year is only about 300.

Met Mr. Vore Wyman curator of the museum and after the formality in getting to him and in working through his collection of birds. The collection is used up. Most of R. D. Wright and while

t members by 1000 species or
D is very good. Also skins mounted
light in cases that are not in the profi
Secured the collection rather hastily
not time to number of correctly
in identifying for the curator.

Calculated to arrive in a downpour
rain so that it had to spend an
hours in drying out my blankets and
tires.

Left via Atlantic Coast line at
2:15.

Below Jacksonville the country becom
undulating with the usual com
Second Pines and occasional tracts of
scrub oak. Much land here had
been cleared. At Lake Weir was an
extensive sedge and cabbage bottom about
12 15 feet higher than that was visible for
a mile or so.

Brought out this region a short
many signs of Ornys Virginianus.
Clearly decided that were especially
noticeable and in many areas the
ground was studded with the
hillocks of sand thrown out by these
animals for acres.

Mockingbirds, sparrow hawks, red-shouldered
hawk and Wheeling Heron were seen and
I heard several whippoorwills.

Arrived at St Petersburg at 10:05 P.M.
and registered at the Detroit hotel.

Rides over Pinellas Peninsula on Gainesville

...of the contrast in this respect to that found in Portsmouth was very noticeable.

Brown Pelicans and an occasional Blue Heron in immature plumage. Found Wards Key a beautiful.

Jan. 18, Saturday.

Clear and cool this morning. This forenoon I followed north to the beach at a small inlet where I found a Brown Pelican in immature plumage fishing. Several others were resting on the sand. Gulls and a few shorebirds were.

There was a scattered growth of long leaved Pine (Pinus palustris) here with an undergrowth of scattered Palmettos (Sabal serrulata). The soil was very sandy. Birds were common and rather tame. A pair of Palm Warblers back from the beach in a woody similar to those when they were found in Porto Rico.

The beach south here was very similar to that of the north coast of Porto Rico and the genera if not the species must be identical. A large-billed Ipomea (Ipomea capiri?) Cantana de Santa Maria etc.

A sharp-pointed beach rush were common.

Collected a few insects but

them other species. There insects
of a large carving were found
under boards below the bark. They
ran and hid like rickets but when
disturbed threatened with the
caudal fingers turned over the back
like the tail of a scorpion. When
seized they pinched the fingers but
the pinch was weak.

At 2:30 I called on Mrs.
Katherine Tippetts who is interested in
the local Audubon work. She said
that last year I had been common
to find Pileans with yellow
on wings along the beaches frequently
the bird Shackell Cove Lighthouse. The men have
obtained however until now this
birds were but one.

On the evening three Pileans
were seen feeding near the wharf.
Left for Bradenton via St. Petersburg
Transportation Company at 7:00 P.M.
and went I entered the Manatee
River. The boat a which of two had
been the Manatee, the new steamer that
has come in here in 25 years ago.
There is a landing at Reed Island
now and I saw that Egret it is
now a growing tree. Nesting destroyed.
The steamer was detained here for most
an hour to unload some ore material
for shipping purposes.

Arrived at Bradenton at 11 and
[illegible] at the [illegible]

January 19. Sunday.

Went this morning at eight and walked east and then south. This country has all been improved lately and is fairly level for some distance. Much of the land has been cleared.

The day was pleasant and windy cool.

Found insect collecting rather poor and confined mainly to a few Diptera collected by sweeping.

Birds were common but not very tame. The latter was out of the ordinary.

Returned to boat at 12:30. Left at 2:00 P.M. sailed out into Palma Sola. There is an excellent road out here and much land has been cleared and cultivated to citrus fruits. The soil is sandy over the cleared areas. Black soil. Some are small farms but we saw fine celery and other truck crops.

At Point Palma Sola the rest of the crew was still on the beach so we [illegible]

Wharf and ice house were gone. The Gattwalk house burned down five or six years ago.

After some trouble I located Mr. Pillsbury and had a talk with him. He is about 5½ or 6 miles from Bradentown. He has no launch at present so that it will be necessary to hire one.

Saw many Coccoloba (sea grape) along the beach.

Returned to town at 7:00 had supper and then spent some time in trying to hire a launch but without success.

Pillsbury stated that the adult Mullet congregated in dense masses in the passes at certain periods and that then the water was milky in color (apparently from milt) so that it may be that then the eggs are fertilized. He also stated that then the Pelicans destroy many of them.

These runs come at irregular intervals depending upon wind and weather conditions and continue for a longer period in spring toward the south.

Later, in March, and from then on schools of small fry mullets from 3/4 inch to 2 inches long come in around the Keys and Pelicans are said to take heavy toll of these.

Hickory said that he understood Pat Williams, Gulf fish Commissioner had seized 30,000 mullet in the fish houses across of Cortez this last week, in part by them under the lawful size that may be taken. The season in which Mullet may be lawfully taken does not finish until Jan. 20.

Mullet have been written in on the bill of fare at the Imperial Hotel, Bradenton [illegible] on arrival, though I have seen none served. I asked for them but was refused.

January 20, Monday

Made arrangements this morning to secure a launch tomorrow but was unable to get no earlier.

This forenoon I spent in working on notes and correspondence.

At 12:30 I walked out west to the border of town and then across into the region south of Palmasola. After a couple of miles I came to a more remote area where the land had not yet been cleared on which was a scattered growth of long leaved Pine with clusters of Saw Palmetto that in places were waist high. Also over areas these Palmettos were replaced by grass.

Scattered low-lying areas were

were covered with water from 1 to 12 inches deep, in this grew clumps of a tall grass.

The swamp was grown with oaks and a higher lying hammock had oaks, Maples and Cabbag Palmettos. The the maples were beginning to bloom though they had not yet shed their leaves from last year.

It is necessary to drain all this land before farming as there are slightly depressed areas everywhere that retain the water. Also one large drainage ditch of found blocks of limestone in which were many fossilized shells, truly a rich ground for any collector. Picked up the land snail with a curiously convoluted operculum though otherwise the shell was like that of Polygyra. (Polygyra woolfiana Smith)

I had little collecting in insects here than elsewhere and secured a number. Mosquitoes were fairly common and other biting flies in fair numbers.

Birds were fairly common. I caught two screech owls in my hands and heard a great Horned Owl hoot!

In one place evidently must recently a swamp rabbit had cut down the shrubs with the black berry collected sunday apparently for the fruit.

Returned to town at 6. Spent evening

in caring for birds and the specimens.

January 21, Tuesday.

Clear and fair all day. Went down to the dock at eight but, owing to the signal delays for gasoline and oil did not get away in the launch Northway until nine. Went up to Wiggins dock and picked up Asa Pillsbury and then went around Smuda's island into Jessa Reig Bay.

At the entrance of the bay were long lines of cormorants engaged in fishing, the flock containing nearly 4000 I was sure and all told there must have been 6000 of the birds. The great out in long lines in fishing and when through rested in flocks in the water, on bars, piles, or other perches. Advantage is taken of this habit. A seine 40 by 50 feet is laid 40 or 120 feet from the water and supported by poles placed to attract the birds to roost in order to secure the guano for fertilizer. At this time not was black with cormorants. Pillsbury told me that this was done all the way from Burnt Spring to Charlotte Harbor but that the birds would

yielded more than those in the bays. The guano is gathered three times each year and one stand may yield two barrels, weighing as much as 400 pounds. This is worth $30 a ton.

Pelicans were also fishing with the cormorants and boats were packing lights up in the bay south of Port Royal Sound. I shot 3 pelicans and on dissection found that they were feeding on "Sardines". Telephoning from which there was a tremendous [illegible] here filling almost the entire bay. The amount of these small fishes consumed by the horde of cormorants must have been tremendous. Also the pelicans ~~must~~ continue to fish all the afternoon resting at intervals and then beginning to dive again.

At Hodges wharf I saw many mullet [illegible]

Landed at an old wharf below Lone Cabin and found many 12 banded Tumidulus magalis in the shallows. Bought lunch here and then ran out on the bay.

Skinned my birds and then returned reaching Town at 6:00

Finished cleaning and salting the

pelican skins this evening. Had two adult females and one immature male.

January 22. Wednesday

Clear and fair today. Left Bradenton in the Carmody Motorway at 5:00 A.M. and went on down to pick up Asa Pillsbury again. A few mullet were running still, around the Wharf at Wiggins. I had mullet at the hotel last night and found it very good eating. The carp fish are not good now as they have spawned and so are thin and have flabby flesh.

We went out of the mouth of the Manatee River and then crossed the Bay to Anclote Key which is our main bird reservation here.

Pelicans and many Cormorants were scattered over the Bay with a few Horned Grebes and Loons. We ran in to the Key and then waded ashore.

The entire Key is comprised in our reservation. It is sandy and low and is covered with a thick growth of Black Mangroves (Avicennia nitida) and many Red Mangroves (Rhizophora mangle) I found no other trees growing. The sandy soil was damp and

Marly very when was studded
with the mangrove stubs that
grow up from the roots. Pillsbury
said that the entire island was
flooded to a depth of two feet
during the spring tides. Because
of this plant growth was restricted
in the main to the mangroves
and a few clumps of a Spartina.
Fiddler Crabs (Uca pugnax) were
common and of course many
kind insects (Odonata) (Diptera)
The black mangroves after dying
away leave inside soft
for a hard center that marks
the heart. The sides of this
decays also leaving a hollow
tube. The outer shell and the
wood surrounding the
heart are very hard and resist
decay so that these hollows are
preserved for many years. The living
trees of Round Brown Bats
inside Nycticeius humeralis. These animals were often
very sluggish and seemed to be
almost in hibernation. Two in
particular that I handled were
cold to the touch, and moved very
slowly making no attempt to
bite when handled. Others
were very sluggish. Two that
I collected also gave this same
sluggish condition of the fur so that

(Following shells collected Littorina irrorata Say, L. angulifera Lam, Melampus gundlachi Pf.

they became wet at once when placed in water. Usually if this occurred animals to soak off the jars.

In addition to these were the nests of a mosquito construction in a class all their own. These were probably made by a Terrapin. I found one that was in perfect condition. A King Crab shell (Limulus) had washed in and lodged on a mound of sand a foot above the water. By means of mud built up around this dome like carapace so that it was entirely sheltered.

A raw track of a large coon and a Bachman sized rabbit of the year. A few vermin and a small bird and mammal in nothing mangroves.

A few pairs of Wood Ibises were feeding [illegible] and a few Herons were beginning to build. Aside from this there was no breeding activity.

100 Pelicans were roosting on a small islet in a lagoon. Pelicans pointed out the places where the Pelicans might observing how the [illegible]

were flattened down and kept smooth by the birds. We saw two pelicans there that had been injured, perhaps by shooting. picked up the least bittern and in the mangroves.

There was a platform built here to catch guano but Tilden told that it was little and so that there was no profit in it. Following is a complete list we recorded on the island.

Brown Pelican
Man-o-war Bird
Shags
Red-billed Woodpecker (two) a pair)
American Egret
Ward's Heron
Little Blue Heron
Black Vulture
Kingfisher
Red-wing'd Blackbird
Bald Eagle.

We left Key Island at 2:20 P.M. and started for Boca-a-pille on Pine Island & getting to each a short distance out the engine stalled and refused to work. We packed between the two cylinders had blown out so that there was not compression. We took the head off finally but were unable to fix the gasket.

About dusk as we were in the main channel the ebb tide began to carry out at a good rate and as we went on down sounded a point, caught a current coming down from Gulfport and so drifted on down toward Pass-a-grille. We had no oars but by paddling with two old boards that happened to be in the boat we made good landing at the wharf at the village.

The evening was calm and restful and as we drifted along we heard the birds and listened to their calls. The low wooded islands lay quiet and still with lights showing in Egmont Key. Porpoises were breathing and playing all about us and once a school of them went thrashing by making a great rushing and splashing in the water. Dusk came when we were on Pass and upward several times directly under the sail of the boat, its form distinctly outlined in the starlight. How dreamy it all seemed through the water.

We had supper in Pass-a-grille, a welcome [illegible]

in the coast (not even water)
leave [illegible] and left from yesterdays
lunch.
Obtained lodgings at Capt. J. Mason's
Hotel.

January 23. Thursday.

Was up this morning at seven
awakened by the usual noise
of hens in this country, a crowing
rooster kept in the backyard.
Found that we could get
packing here at Pass-a-Grille and
so I went after breakfast. the Pilot
and State Engineer Chas. Strickland
took the auto around while I went
on down the Island (Pine Island)
to look at the birds.
That night I talked with Chas.
Rivarto a fisherman here who
complained bitterly against the
Pelicans. He claimed that there were
at least 100,000 birds and that
on this coast, as they continued
to breed and increase with nothing
to keep them down. And said that
they were eating all of the
fish. All of his statements were
greatly exaggerated.
Pillsbury has estimated the
birds breeding on Indian Key
at 4000. He states that there is

practically no increase or decrease in their number.

He says that Passage Key is slowly washing away each year and that as soon as it is gone there will be no breeding place for Terns or Skimmers on this coast short of the Tortugas. He says he might fix a sand bar and build up this little island properly & this could be done at an expense of about $1000.00

He states that only three pairs of Brown Pelicans or Pelecanus Fuscus breed on Passage Key.

Pine Island (or Redfish Pass) Hill is built like on the outside so that the outer beach forms on the gulf of Mexico. The waves have formed a beach of shell and sand there. It is full of many small conchs, scallops, oysters, pompano shells and others. Also a few sharks, rays and similar material.

About nine Pelicans began to come across from the Passage Key and settled on the coast or on sand bar just above the waves. They came singly or in twos or flocks of a dozen and settled on the beach or in the water.

(Collected Chaetopleura apiculata Say a Chiton)

Birds continued to come for an hour and a half until there were about 200 in all. Several hundred Cormorants and a few hundred Royal Terns were also present. Pelicans were not putting in their usual appearance as they are not feeding on the fish. Shooting is allowed here and birds are in season. I saw Semipalmated, Piping and Wilson's Plover on the beach.

About noon the engine was in order again and we left to complete the day with the larger launch in case we broke down again.

Captain Bill Bishop who was in charge of this boat was with Howell last year, he met him and secured valuable information in regard to conditions along the coast. He says that there should be mullet a day or so after the full moon which will occur on Jan. 31.

He is of the opinion that the fishing and the fishermen has been unfavorable for the decrease in mullet and not the Pelicans.

Yesterday I found two small schools of mullet off coming in at Channel Key, which were four half

one inch to an inch and a half long. They come in to the shallow water one inch to five days and swim in a close compact school, then finding by sticking down in the sand with their bills may have been silver mullet. (Specimens collected.)

Pillsbury says that he has seen the king crabs coming out to lay and that Karakoos and other birds accompany them to eat the eggs.

The wind had come up and the passage out was in the south but was not very bad. Kept on the starboard tack for part of the way to avoid the water which broke on over the bow. We came in to the shelter of Shoalwater Bay and were soon in the quieter water of the mouth of Bruce.

Dropped Pillsbury at his place and then came on in to Bradentown reaching there about noon. A bath was rather wet with salt water, no fresh water bath, but we dry clothing and then spent the rest of the afternoon in sleeping for about

inards and the natural. Worked on this and on straightening out things this evening.

January 24, Friday.

Light [illegible] all night but stopped this morning. Cleaned up my outfit and packed some birds including three salted pelicans and forwarded them by express.

Mr. J. W. Wilson from Winnebago has been visiting Carmack since the two turkeys Thursday June on the Matilda Lion. He tells me that at a place in the Everglades known as the Corkscrew there at least half a dozen pairs of Camptorhynchus labradorius may be secured. This locality is two days travel by team.

Worked until noon straightening out and packing and then wrote on my notes and official correspondence all the afternoon, and a part of the evening.

January 25, Saturday.

A heavy fog came in this morning and remained until noon while other fog banks passed at intervals during the afternoon. The evening was clear.

Left Bradentown for Cortez in an auto bus at 8:00 a.m. arriving at Cortez at 8:45. Fare $1.00 for self and baggage. It was foggy all the way. That my only impression was of a rough shell road full of chuck holes. Cabins but through the thin stand of yellow pines half obscured by a saddle Driving mist. At Cortez I secured quarters at the Albion House operated by Joe Guthrie. A thin rain was falling & dawn at its last hours, all the men living out fishing & hanging clothes & nets which at south and east following the lagoons leading in from Sarasota Bay.

Cortez is a fishing village located at the tip of a promontory that projects out towards the Long Key known as Anna Maria Island, with Palma Sola Bay on the north and Sarasota Bay on the south. It is a small town, placed on low lying ground along the beach and bay. A shallow body of brackish water stand between the houses and the grounds in front of the hotel porch was dotted with the holes made by the fiddler crabs.

Sarasota Bay is bordered by red and black Mangroves forming a narrow border with thick flats of fine sand & scanty grass in front of them. Behind is a slight elevation

and Fiji. The usual varieties of Opuntia ficus indica and Cereus triangularis were available. The palmettos in most places were short and thin from numerous fires.

Fiddler crabs (Uca pugnax) were found on the flats in great abundance. Hordes of them crawled ahead of me with a low rustling of claws and feet on sand. Usually they bunched up and crawled in companies - possibly for protection as shadows of any kind on me being picked up by an enemy thus were lessened. At a distance of 200 feet they resting in companies on the sand but as I approached all were in motion. I found it difficult to avoid stepping on them. Collected a few Heteroptera but did not find many (also Saccoma (Holometopus) cinctipes)

Talked with Frank and Irving and had a long conversation with Mr. Joe Guthrie who owns the hotel here and has a store and fish house on the dock. Mr. Guthrie has been engaged in the fishing industry here for 15 years, first as a member of a fishing crew and then as owner of his own boats.

He said that the main trouble with the pelicans here was that

if they were not molested they became tame and fearless and interfered with the fish in the nets tearing them and stealing those that were near the surface. Sometimes too they were attracted by the hauling of other nets and by diving in them caused the fish to dart down and entangle the net when it was in deep water so that part of the catch escaped. By shooting and driving off birds they were able to keep them from doing serious harm as the pelicans soon learned to avoid the nets. He found the whole of the Brandy Point farmers were with crows and blackbirds in their corn. He said that he did not think that the pelicans fed to any great extent on mullet, as they could not dive to secure them.

He stated that the year the mullet were the most plentiful fish caught on this coast and many of them were sold to the fish dealers brought down to Point of Pines. Two of the fish houses ship to Canada, one at St. Petersburg. They have the catch distributed in Florida, Alabama, Georgia and South Carolina. He stated that its

Carleton now seems as good and even better than a few years ago. Though it was possible that some fish were scared as we were back & forth were lost because improperly handled while most had made this unessential to nothing.

He did not consider that the pelican was any particular menace to the food fishes.

Some stop netting is done here but not so much as near Charlotte Harbor.

From 3 to 6 I walked out along Palma Sola Bay finding it the favorite resort of birds as that visited in the morning. Heard a pair of great Horned Owl hooting and a Red one.

January 26, Sunday.

This forenoon was clear but windy. I crossed in a dinghy to Anna Maria Island and walked south to Longboat Pass watching for shorebirds and other things of interest. There are seven pelicans here this afternoon at Pass & Gulf and one more roosting on the beach.

It had rained during the night so that I was unable to get anything remarkable in the way of plants. Anna Maria Island is a sandy key with mangroves along

water some where and on the
first beach in the outside Island
the Gulf. This beach was strewn
with shells.

I found a Chrysobalanus growing
on the beach and several other
plants of interest. As the sun was
rising from the surface of the
water I was especially interested in hearing my
glasses clean.

Returned to Belle at noon
and then went fishing in the
afternoon and night.

Mr. Fred Stewart a prominent
fish dealer of New Laredo who has
been in the fish business for a
number of years. His statement
was that there were a million
pelicans and that they were
for a great menace in destroying fishes.
His statement was practically that
made by the fish commissioner Williams.
The fishermen are complaining
of the pelicans working in their
nets before they are ready to bring
them in and as they are not
protected by the fish laws they
are destroyed in large numbers
by the fishermen.

Worked with the fishermen in the
evening.

Made preparations to go out
with Capt. Billy Fulford in the

January 27, Monday.

Was up this morning about 5 and saw the start for Berth Cliff. Went to Stableford who was a fishmonger with. His consists of a launch with an engine and four boats each with a net and which are towed behind. When a school of mullet is sighted in the shallows the boats are put off and are forked in toward the fish in a wide V sts surround them as suitable position was reached the Captain hailed out to the men to throw over their staffs attached to the end of the net and then the men forked rapidly with the nets running out over the stern of the boat to form a wide circle around the fish. The two head boats of course were advancing into the shallows and as they drew nearer to the end the men in them stamped on the bows in which the fish were entangling the fish and driving them to deeper water where they were cut off by the nets already in place. When the circle, about 100 - 125 yards across was complete the boats turned and all proceeded toward the

center 25 or 30 form a circle
the large circle then set with 5
segments. The boats then poled
back and forth driving the fish into
the nets. Other boats were filled.
When fish started back and forth
without going into the nets they
were liberated.

The nets were then pulled over
and the fish taken out. Four nets
were made and between 500 and 600
fish taken. These fish sell at 4½
to 5 cents a pound. Fishermen make
over the average $50 a week often
and sometimes $100 in one week.
When the weather is calm a crew of 8 men
make $300 a week and more
with an extra $50 which is set
aside each week to replace the
nets.

The Filipinos used to dredge.
That is going out and driving in
the nets so even as the set
is made. When the netting was
started there would be only one
or two in sight but by the time
the nets were set from 20 to 25
had gathered. The fish swimming
there did not readily approach. Fishing
was poor today however and
no Filipinos were seen striking out

although the birds were in sight
constantly and by the time the
last set was made the birds and
porpoises.

Early in the morning they came
down and struck at fish caught
in the nets or sleighted on the
work line pulling and hauling at
the fish behind them in the mesh.
On the first set we succeeded in
getting a mullet, on the next two
got nothing. On the last set the
birds were very hungry. When
the mullet were encircled the
porpoises struck at them repeatedly
as they darted about the circle
but the fish were utterly too quick
for them. Captain Tuttle assured me
that occasionally they did secure
mullet in this way.

Mullet were jumping in fair
numbers everywhere in the school
but the porpoises paid no attention
to them except when they were
jumped up apparently realizing that
it was useless.

On this last set the birds
came consecutively and pulled
and hauled at the stiller mullet. I
saw six or eight mullet hauled
and swallowed but usually the
fish had been too quick and
were wrapped in the mesh so

that they could be lifted from the water but could not be handled. Frequently from two to six porpoises were driving and thrashing at one fish until a crowd would collect with from ½ to ¾ of the water boiling with them. All this time the fish would be trying to escape and would dive to the bottom. Sometimes the porpoises would succeed in getting the fish to the bottom and hold it there for a long time. The porpoises are known as the most ferocious fish. They would in addition to the above get the head in their mouth and so allow the water to enter the fish's gills and thus kill it. Sometimes they would be caught in the nets but they would tear their way out. Sometimes they would be caught alone in the nets and would drown before the nets were hauled in. Capt. Fulford stated that he believed that there was in the neighborhood of $50 worth of fish a week in this way.

He did not believe the Dolphin responsible for decrease in food fishes though he considered them a nuisance. The birds are numerous and do

fearless. There is no doubt however that they could be made more shy by a little shooting.

The decrease in trout fish is to be attributed to stop netting a practice that is carried on in defiance of the law against it. Fish by a description come in with the tide to feed in inlets or bayous. Certain fishermen then close the mouths of these with fine mesh nets so that when the tide goes out fish of all sizes are left high and dry. This method of fishing not only catches but destroys the small fry which otherwise would help to enrich the stock.

The whole process is against the law but is encouraged by many fish dealers who if asking for large catches might - minded fishermen like Capt Fullford denounce it as the reason why they are not getting what they want to. If these times of trials something ought to be done to stop put it right.

According to Fullford the fishermen think at it as sometimes embarrassed to be elsewhere when their is going on. The fish commissioners know of it but make no effort to stop it as in

[illegible] to be under the influence of the fish dealers. [illegible] Dare County but they are [illegible] strong [illegible] of the fish dealers. [illegible] is recommended fine is imposed and the nets and catch are confiscated. The least value of fine is $500 for 1st conviction. Usually practice is to fine $100 and costs about $125 all.

No [illegible] of this [illegible] dealers are attributing [illegible] decrease in fish to the fishing and [illegible] by the under [illegible] of it.

[illegible] returned to Cedar at 2:00 P.M.

spent the afternoon in working on notes.

Caught a series of [illegible] today in dim color, blotched with [illegible] The animal was exhausted when I got hold of it so that I got no shock.

January 28, Tuesday.

This morning I went out with Captain Fulford again leaving Cedar at 4:00 A.M. We went with [illegible] Sanford Bay and then had to lay [illegible] at anchor until daylight as it was too rough to race. We started out at six and found we were going out through the pass at Fort DeSoto. [illegible] around Mullet Key. [illegible]

Walk was cool to work with
with near Beach Key. It was
still cold and there were comparatively few mullet in. The day was calm however.

Pelicans have still seemed to be feeding over in Terre Ceia bay as they came from that way and though the birds were about they made no attempt to bother the nets. At the last set twenty pelicans were resting on the piles within and eighth of a mile but none came around at all. My part no pelicans came to the nets at all today.

The birds are worse during periods when fish are hard to get.

Mullet were jumping in one big shoal and pelicans were flying over head but the birds made no attempt to strike at them.

Bird Rock now stands poised to catch mullet permanent shore.

Frequently mullet begin to strike the nets when coloured and so many get away.

We came back to Cortez about three.

I walked home then along the shore of Sarasota Bay for about three miles and remained out

until six.

Fundulus Majalis were common in schools in little shallow bays here and louisiana Mons bore feeding on them extensively. the fish were in salt water.

Finally. Two Pelicans came in and began fish for them. the birds flew slowly low ~~and~~ just ~~and~~ above the water until near their prey and then threw them selves down with sudden curve of the bill. then recovering themselves they drained their bills and then swallowed they were fishing in some two to four inches of water. sometimes they merely walked along and then ~~would~~ turned around.

Three Gulls, Sterna Maxima and Sterna were all very wild. so that they may be used about here. the only violation of the migratory bird law that I have seen is that Gulls are occasionally shot from motor boats.

Returned to Fort at six. Had supper. Then joined part some Indians and watched a little game with pelicans. Some claim that each pelican obtains 10 pounds of food each day.

This noon I went down

two more outfits were stopping above Corby.

The legal mesh that may used in gill nets is 3 inch or 1½ inches on the leg when turned. My nets used heretofore run from 1⅛ to 1¼ on a leg.

January 29, Wednesday.

This morning Fulford pulled a seine at the dock at Corby but caught such a large number of catfish that he turned them all out as it was worth more than the value of the good fish to take the catfish out of the net.

About 25 Pelicans were attracted by this but did not venture near the net. When the net was taken in a large number of fish were left caught in some ~~[illegible]~~ seaweed. The Pelicans swam around this all day attracted by the fish but refusing to touch the catfish though occasionally one secured a good fish.

Packed a box of specimens to send in and then packed my outfit to leave.

Finished at three P.M. and then worked on notes.

Yesterday I shot a rat concealed in a hollow mangrove on the beach French down and found some sort of fiddler crab (Uca pugnax) that I cannot classify. At the ground below it. Brought the rat out to see what species it was.

Left Cortez in the boat at 11:40 P.M. and arrived in Bradenton at 5:10. Forwarded the express box and attended to one or two other errands and then left on the boat for Sarasota at 5:40 arriving at 8:45. Put up at the Watrous Hotel. Had clothes cleaned and then arranged for the launch tomorrow. Weather threatening.

January 30 Thursday.

Left Sarasota this morning at eight travelling down Little Sarasota Bay to Little Sarasota Pass then down to Casey's Pass opposite Venice, returning at 6:30 P.M.

Mud Bay is very shallow and for much of its distance a channel has been dredged to permit the passage of boats. The bay is narrow and the channel led along through oyster bars and mangrove covered islands.

Mallard were common over all these salt ponds but pelicans

no effort to strike at them.
I watched two fishermen make
a set with gill nets in the morning.
Two or three Pelicans came up at
once and half a dozen more about
the time that the nets were out.
Two of them made an effort to get
a mullet but the others did
not get into the nets at all.
Talked with a number of
fishermen but they made little
or no complaint against the
pelicans. They were afraid to bother
the birds for the nets and the
men did not think that they
had to any extent injured fishing.
At Casey's Pass I met Mr.
Alba Whitehurst and several fishermen.
These men did not think that
the pelicans made any particular
difference in the number of fish
but thought they did injure
that the birds secured mullet
fry in the shallows. They had no
complaint to make of the birds
following in their wake. This habit
they would seem to be a local
one.
Mr. Whitehurst said that the
scarcity of fish just in the
market should be included in
this way. At Casey's Pass

is a good fishing ground for Cook and Cinc fishing. Located out of sight of land. This ground is difficult to locate. Mr Whitmore suggested that several buoys be placed to mark this bank so that it would be available to readily by fishermen. Red fish and grouper are plentiful here.

Yesterday at Coste Blanca saw catches of mullet. Fish had evidently been driven by storm. Many had their eyes picked out and holes driven in their sides apparently by birds.

Sighted two turtles at least that were apparently preparing to mate. Started in Santa Barbara Bay tonight.

Landed in Tern Bay and walked across to the gulf across narrow islands. The land is rich. This was fringed by mangroves. On the outer side was a sand beach on which the surf in the gulf was breaking. There were a great many cabbage palmettos on these islands in places these formed quite dense growths. There are more here than I have observed elsewhere.

Rabbits tracks were numerous

in one or two localities and I saw where the animals had fed extensively on the pads of the common Opuntia. They ignawed in from the edge cleaning the little prominences containing the spines and eating one half to two thirds of each pad. There were dead animals and carcasses the pad died. I saw one cottontail.

Thermometer at about 60° all day.

January 31, Friday -

Worked this forenoon on notes and on my expense account for January. Rain all part of the night and during most of the forenoon.

In the afternoon I called on various fish dealers. Went first to see John Bavarese who I had met on Corte but learned nothing new.

Called next at Wilson & Hall Co and met M. J. Levy and a fisherman named Greenwood. They considered Pelicans as of no particular harm. Mr. Levy told me that last week, the first after the open season they had shipped 50 tons of fish and that in the year running from Oct. 1, 1917 to October 31, 1918 they had handled 6,200,00 lbs.

Called next on Higgins & Goethe and met E. J. Higgins. Subject of the matter here claimed that pelicans destroyed many good fish, others that they did not. Particular damage. Some complained of the birds perching on their drying stands for nets and fouling them.

Called next on W. E. Foreman and heard quite a tirade of hot air. This gentleman is evidently engaged in stopping up the walls, making holes in an inch and one eighth mesh net. He made considerable complaint against the pelicans taking fish from his nets but I considered him unreliable. Apparently the stop netters who are violating the law have more trouble than others. Foreman said he was buying a steam launch and intended to shoot pelicans and use their skins for packing to fill up barrels of salted fish. He said he could see no reason for protecting terns as no amount of shooting seemed to affect them.

Fishermen seem about evenly divided on whether pelicans do damage or not. There is either no talk of the matter or

February 1, Saturday.

Completed monthly expense account this morning and certified to it.

Saw Mr. Silden Davis, Fish Warden here. He said that in his opinion the pelican is doing no damage to the fishing industry but that the trouble is rather with the fishermen themselves. He said that the use of small mesh nets in taking fish had been authorized by the Forest Administration but that the time was up on them in June.

Left on the bus at 11:30 for Bradenton and then took the East & West Coast Railway to Arcadia leaving at one.

This is rather a primitive little Railroad that uses wood burning locomotives. It is a new road running down through eastern Manatee County. Thousands of acres of long leaved pine has just been cut for turpentine. This yellow Pine growth was very characteristic here and covered practically the entire county. The trees grow at intervals of 10 to 30 feet scattered over the sandy soil. The undergrowth of saw Palmetto had been largely destroyed by the

Expenditures Jan 14 31, 1919.

Form 4	106.70
Transportation Reg.	36.95
Total	143.65

Authorization	400.00	
Unexpended balance		256.35
Estimated expense for Feb.		200.00

Large pastures were filled with Gallon's Brahma Cattle. Saw grown with bull grass. I saw Great Blue and white Blue Herons in pastures. Saw several swamps which were grown with deciduous trees.

Arrived in Arcadia at 4:30 and transferred to the Atlantic Coast line depot.

Walked out to Theodore Jr and collected insects until dark. Left Arcadia at 10:00 P.M. and arrived at Punta Gorda 10:40 P.M. The town was filled with soldiers and we had no trouble in getting accommodations. Registered at the Punta Gorda Hotel where I found a dance going on in the hotel lobby. Had to wait until midnight to get a bed made up.

White Violets were in blossom at Arcadia and I saw many pines with red blossoms.

February 2, Sunday.

Rain at intervals during the forenoon. About noon I went out a few minutes walking southwest. The border of the bay here is bordered with Mangroves with the usual pines and palmettos behind it.

secured a few insects by beating on yellow Pine and then about 7 P.M. the rain increased making it too wet to do anything further.

Secured a few beetles today by turning over boards about an old field. There are practically no beetles along the beaches; as yet I have seen only a few Staphylinids at Casey's Pass.

Returned to the hotel shortly after four.

Rain increased then and it rained heavily for most of the night.

Talked with Martin, a Spanish fisherman who has fished from Campeche to Cuba. He claimed that the pelican destroyed many Mullet during spawning and also that they ate much small fry of trout, pompano and others. He said that later when the sea was calm the birds filled up on this fry, flew over and rested on some shoals and then regurgitated the mass, immediately going back to fish for more.

Met a hunter today who had killed 3 pintails & one Bluebill

February 3, Monday.

By this morning still overcast with occasional rifts of rain. Late it cleared and by noon it was hot with the air very humid.

I had promised to launch this morning but I was unable to secure it. After waiting until nine thirty I was forced to give it up and went out in front. Observed the country traversed yesterday and went on into an area of long leaved Pine that had not been cut out at all. The stand was very good and the undergrowth of Palmettos was high. Through this were small lakes sunk into to form just below the general level. Some of these had open watery ground with Sagittaria, others were grown with a sedge. They were so sunk below the surrounding level that it was easy to overlook them.

I saw exposure of a limestone rock containing quantities of shells in some sand flats. Sand flats were grown with a fine sedge with extremely sharp cutting points.

By noon the shrubbing had dried sufficiently so that I was

able to do collecting by wading and secured some good insects.

It turned very warm late in the day.

Bird life is rather scarce through this pine flats belt in the clear weather this afternoon I noted some increase in their number. Collected a few birds. Returned to town at 4:30.

Mosquitoes were a pest today and I found them very poisonous.

February 4, Tuesday.

The sky was overcast today but it still remained warm. Until today the thermometer has stood around 62° F but now it is about 70° F.

I went out in a launch this morning about 7:30 and travelled slowly down Charlotte Harbor on the South side and finally into a small bay filled with many small islands grown with Rhizophora mangle, all what is known as Crew Key. Several heavy showers came during the forenoon and a storm is threatening.

The waters of this bay here are murky and dark so that

it is difficult to see fish at any distance.

I saw a broad wake in one place and had a glimpse of a large "sea bat" (Manta birostris). These are said to be common here.

At one place there was a small run of small sized "Glass minnows" (Spratteloides oglinum). These ran in little schools 5 or 6 feet to 1 foot long and broke at the surface, make a small dark patch with shorter ripples than the sardines. These schools were scattered from 100 feet to as many yards apart. A few Pelicans were fishing on them. The birds flapped and sailed along barely clearing the surface until one of these minnow schools was sighted when the Pelicans threw himself into them with a sudden bend of his body and a quick forward thrust of the head. His momentum always carried his body on past to that at the conclusion of the dive he was facing in the direction from which he had come. (resting on the water)

A second area of bait was

Schools of Thin minnows was seen farther down with 100 or two pelicans diving into them.

The mullet are said to school here to spawning in December. Fishermen were rather vague regarding the manner of schooling and I believe that most of their information regarding it is hearsay.

At Crow Key about 20 Pelicans were fishing. Large numbers of small mullet were running on the shallows here. The pelicans apparently were striking at them. I watched them for here for an hour but saw only one bird capture a fish. The quick dart of the mullet apparently is too swift so that the pelicans miss capture.

A rain storm came on and the pelicans ceased fishing and rested on the water. A short time later they flew off among the islands and did not reappear until the rain had ceased.

Practically all of the birds had finished fishing by noon though I saw a single bird still striking at the glass minnows about four.

Above Crow Key I found

were about 75 pelicans were resting on a small Key grown with mangroves. About 150 of these birds were adults.

Observations today bear out those made previously that the pelicans feed early in the morning when fish are to be had and then go a roost and remain there for most of the day. They seem to feed only once in 24 hours. When fish are hard to secure however they feed at every opportunity.

Yesterday we went up the mouth of Alligator Creek looking for water turkeys but failed to find any.

Returned to the hotel at four and packed my outfit in order to leave in the morning.

Spent the evening in working up notes.

Had opportunity today to examine one of the stands placed in the water to collect guano from the Cormorants. This platform was placed on 4 x 4 posts and was about 35 feet long by 10 feet wide. It was elevated 8 ft just above the water. The piles are sharpened and worked in to the sand by

hand. The platform is made of rough dressed inch boards laid tightly so that the cracks are closed by expansion due to absorption of moisture. A six inch board was placed on edge around the platform to form a raised ~~Cedar~~ border. When I came up the entire platform was covered with Cormorants. About an inch of excrement had collected. No one seems to know who has placed these stands.

My catch today did not drive the fishermen from doing any harm to poor fish.

I am told here that fishermen in the ten thousand islands below here fish for mullet all during closed season and sell their catches; so that the closed season is practically a dead letter with them.

February 5 Wednesday.

Sky overcast this morning with rain threatening.

Left Punta Gorda via the Atlantic Coast Line at 8:45 and arrived at Lakeland at 12:30. Zolfo and Wauchula lie near Peace River and look like

favorable collecting localities.
Left Lakeland at 11:15 P.M. via Atlantic Coast line. The country from here on was slightly rolling and the vegtation more varied than in the areas where I have been working on the West Coast. Earth mounds thrown up by Geomys tuza were abundant.

Arrived at Orange City Junction at 4:30 P.M. Transferred here to the Florida East Coast Railroad. I found Pinus clausa abundant here. The trees were slender 30 feet high with needles of moderate length in dwarf cones small conic with a stout spine near center of scale. Saw a Ruby crowned Kinglet.

Left Orange City Junction at 5:45 and had a slow trip to New Smyrna in the dark. It was raining here and as I was not sure to arrive in Sebastian until midnight & hotel accommodations were uncertain I remained in New Smyrna overnight. Registered at the Rio Vista Hotel. Arrived New Smyrna at 7:30 P.M.

February 6, Thursday.

Rain continued nearly all night and the sky was still overcast this morning. About ten it cleared

somewhat, a strong northwest wind came up and it turned much colder.

I slept well last night & needed rest as the night before at Punta Gorda mosquitoes were bad as my window was screened, barometric pressure was low, making me restless so that I did not get much sleep.

Was up fairly early but was an unconscionable time in getting breakfast. Walked south along a road paralleling the inlet. The Rio Vista Hotel lies to the south of New Smyrna and fronts on North Indian River a narrow body of water with an island beyond. Birds were abundant on the water and in the hammock back of the road.

A quarter of a mile below I found a large shell mound. Though time did not permit thorough examination the portion of this mound in view covered over an acre and was 12 or 15 feet deep. It is probable that the mound was larger as the farther portion extended in among the growth of trees. Excavations had been made along one margin and I spent half an hour digging here in hope of

Discovering some fragment of a great ark but uncovered nothing more exciting than oyster clams and conche shells. The mound was practically a pure deposit of these, part entire and part broken and 2 and for a foot near the surface contained practically no humus.

Returned to the hotel about ten and wrote up notes and official correspondence until 12:10. Had lunch and then left New Smyrna at 1:40 P.M via the Florida East Coast Railroad for Sebastian.

This road follows the coast closely so that water was in sight for most of the distance. For much of the distance there was the usual long leaved Pine and saw Palmetto. Below Titusville however was a sandy area where Sand pine (Pinus clausa) came in with some shrubby plants that I did not recognize.

Arrived at Sebastian at 4:30 but find that the hotel was closed. Secured accommodations in Mrs. Kane's Boarding House, brought over baggage.

Worked on notes in evening.

Much cooler this evening.

February 7, Friday.

Cool with an overcast sky this morning. After breakfast I walked

out to Paul Kroegel's place (Wardenbrie) and found Mr. Kroegel. We made arrangements to visit Pelican Island this afternoon.

Following this I walked over and collected some Florida Jays. These birds are common here. Then returned to Sebastian.

Sebastian is a small place of about 200 inhabitants on the west bank of the long body of water known as Indian River. The soil here is very sandy and oak scrub is common with much Sand pine, Pinus clausa, saw palmetto and Cabbage palmetto. Birds are abundant and this is a good place to collect as the country is thinly settled.

At 12:30 I walked out to Kroegels again and we crossed to Pelican Island, returning at five. Description of the island will be given later. Following are notes on food of young pelicans obtained from material that had been disgorged by them birds. Each number on the accompanying list represents a meal for one bird. The fish in all cases were entirely whole.

1. Three menhaden
2. " "
3. 21 menhaden 3-5 inches long. 1 Neomicrophus, 1 Menida
4. 1 Dorosoma 12 inch
5. 16 " 4-5 "
6. 1 " 10 "
7. 1 " " "
8. 3 " 6-7 ", 1 Neomicrophus, 3 Mugilcephalus 4 inch and 1, 8 inches long.
9. 1 Brevoortia
10. 1 Dorosoma 12 inch
11. 1 " "
12. 1 " "
13. 1 " "
14. 1 " "
15. 4 Xystaema cinereum

The fish identified as Xystaema had a pronounced black spot at base of dorsal fin.

Returned to Kriegel place at 4:30. Worked on notes and specimens this evening.

February 8, Saturday.

Was up early this morning and walked out to Kriegel's place, a mile and a half south of Sebastian. The sky was clear and the air cool and bracing, so that truly it resembled a spring morning. Cardinals and Carolina Wrens were singing and Mockers and Florida Jays sat along the telephone wires humming their own

in the warm rays of the sun.

At Kroegels I met Mr. Arthur Nelson. Who has some position in the Museum of Comparative Zoology at Cambridge.

From Kroegels I rowed over to Pelican Island in a skiff, a distance of about a mile.

As it is now constituted Pelican island is bare of vegetation save for some clumps of scrubs at one end though stalks of tall weeds from last years growth were seen in one place. The island is only about 4 feet above median water mark under ordinary circumstances at its highest point. The high portion of the island on which the birds are nesting is in the form of a semicircle around the eastern edge of the island with a depression partly separating this ridge near its center. The remainder of the island is low and is covered with water at high tides. The birds occasionally build nests in this low part but are always washed out. The whole island covers about an acre. There is a larger colony of nesting birds on a Mangrove covered island two hundred yards east.

Pelicans of course were everywhere and by moving slowly and cautiously I was able to approach within a few

feet of them. Took a number of pictures at 15 feet.

Besides the pelicans, a few Black Vultures and a number of Fish Crows were present. The former picked up what fish remains they could and also picked the bones of any young pelicans that happen to die. The latter come here in part for the same purpose and also probably because the open flat sand forms an attractive place for them.

The ground was covered with excrement of the pelicans and was foul and rank in smell. The color from it may usually be detected at some distance.

I followed the same tactics as yesterday and secured the following data from meals regurgitated by the young. Each number represents the material from one bird.

1.	2	Dorosoma Cepedianum	12 inch
2.	1	" "	"
3.	1	" "	"
4.	1	" "	"
5.	4	Brevoortia	6 inch
6.	2	Dorosoma	"
7.	2	"	"
8.	1	"	14.
9.	2	"	10 "
10.	2	"	6 "
11.	1	"	"

12 2 Mugil cephalus 1 5 inch, 1 8 inch
13 2 Dorosoma 4 inch
14. 4 " 4-8 "
~~15~~ (in nest with newly hatched young)
15. 3 Dorosoma 6-9 inch
16. 2 " 12 in
17. 1 " 9 "
18 2 " 14 "
(in nest with 2 yg wak old)
19. 1 Dorosoma 4 inch partly digested
(secured from a day old young bird with the yolk sac not yet entirely closed. The bird had its eyes open and swallowed the mass again immediately)
20. 1 Dorosoma 14 inch
21 1 " 14 "
22 6 " 7-8 "
23 4 " " "

There were on the island 186 occupied nests of which about 15 contained young and the remainder eggs. Also in addition about 400 young 1/3 of them able to fly were walking about on the island and 200 pairs of adults just mating were preparing to build. Also made about 800 pairs of pelicans for this island. I doubt that seldom is more than one young brought to maturity. Three eggs is the full complement. But I found one nest containing three young and they were newly hatched.

Returned to Sebastian at five

February 9, Sunday.

Clear and warm this morning. I took a lunch and crossed again to Pelican Island remaining until four in the afternoon. The wind began to rise from the south about ten and increased until it was quite strong. Mr. Kroegel came for me in the launch at four and towed my skiff back otherwise I should have had a hard time of it.

This morning I crossed to the east island and found a great congregation of breeding pelicans with nests in the mangroves. This place is much better for my work than the open island as the birds are in large numbers, and are continually coming or going so that they do not take note of the small groups that I drive up in working through the colony. This rookery is of such size that it is much more interesting than the other.

I worked along as before moving slowly so as to disturb the birds as little as possible. Young of various stages sat about in the mangroves. And I came near they often clambered along through the branches and returned to their nests. Here they seemed to think that they were safer, and I saw birds often sailing between

in nests that obviously did not belong to them as they contained complete sets of eggs. By moving slowly the young birds were not badly frightened and in no case did any fall out onto the ground, save in one area where there were a number of nests ~~within~~ in low mangroves where they were from one to four feet from the ground. Young pelicans after they were half grown clambered in and out of these readily and frequently scrambled out as I passed. In climbing the birds walk along on the ~~the~~ tough flexible branches of the mangroves with long reaches of their great feet, spreading their wings wide and balancing by pressing them on the branches on either sides, while with the bill they hook onto limbs ahead and so aid in pulling themselves along. The head is used especially in climbing up as the birds reach up and strong the bill over limbs above and then pull themselves up. Though seeming very awkward it was surprising to note how readily these clumsy looking creatures climbed. In crawling up into nests the head was arched over and the tip of the bill held firmly forming a

solid rest against which the bird pulled.

The young birds that had been fed were continually chivied by others, usually larger in attempts to make them disgorge. When I came along and advanced slowly toward them these young seemed to take it for granted that it was their fish that I was after, and when they perceived that there was no escape usually disgorged. I would walk gently up to a bunch of a dozen or so in a mangrove and then stand or walk slowly about for four or five minutes. Suddenly first one bird and then another would disgorge and then either rest quietly or scramble away through the limbs. It was exciting to watch them closely and not walk under them as a fourteen inch gizzard shad half digested struck forcibly with a wet slap and would hardly have been a pleasant object to receive on the head.

Young on the ground gathered in little groups that scrambled along ahead of me waddling, falling and scrambling over obstructions. After standing quietly for five or ten minutes or so these birds, (those that had been fed) would disgorge and

them remain quiet. Sometimes the fish were ejected easily and again only after considerable effort, so that three or four attempts were necessary. Sometimes the fish were given up reluctantly and the bird would bring them up into the throat and thence after reconsideration swallow them again. I saw one bird do this twice and only give up after a third attempt when it stood eyeing me and then the fish as if tempted to take them again. After the birds stood guard over the fish and did not move away. When I had passed on there was a scramble and all fish in sight were chased up, adults as well as young participating in this.

After groups of young would gather at the edge of the water and or wade out a few feet and disgorge before swimming away. These fish also were chased up immediately when I had moved on the adult getting the most of them.

The young unable to leave the nest were fed upon small membracids and etc. and these birds very seldom regurgitated voluntarily. I could distinguish those that had been fed by the lump that showed

at the base of the neck in front, marking the projection of the filled stomach. With these it was necessary to work the fish up toward the mouth with my fingers and then to pull them out with tweezers or my fingers. Usually the birds seized them and swallowed them immediately when I laid them down.

Young are fed soon after hatching. I took in parts digested fish from Dorsoma from a bird not a day old in which the opening of the yolksac had not yet closed. This bird was particularly clamorous and grabbed at the fish repeatedly after I had removed it. The feeding instinct seems to come to the adults sometimes before the eggs are hatched as I occasionally found undigested fish laid in with shard at edge.

Following is a record of individuals made today.

1.	2	Dorsoma cepedianum	14 inch	
2.	1	" "	15 "	
3.	1	" "	12 "	
4.	1	" "	12 "	
5.	1	" "	5 "	
6.	1	" "	12 "	2, 6 inch
7.	1	" "	14 "	
8.	1	" "	8 "	3 Menhaden
9.	2	" "	8 "	3 "
10.	21	Menhaden	1-5	

11.	1	Dorosoma cepedianum	14 inch	
12	4	" "	6 "	
13	1	" "	14 "	
14	1	" "	15 "	
15	1	" "	12 "	
16.	2	Menhaden	6 "	
17.	4	Dorosoma cepedianum	8 "	
18.	25	Menhaden	4 "	
19.	25	"	4 "	
20.	2	Dorosoma	14 "	
21.	2	"	14 inch, 2, 6 inch 2 Menhaden	
22.	2	"	14 "	
23	2	"	6 "	
24	4	"	8 "	
25.	1	"	14 "	
26.	1	"	14 "	one 12 inch
27.	1	"	14 "	
28.	2	"	10 "	
29.	1	"	10 "	2 menhaden
30.	5	Menhaden	4 "	
31.	1	Dorosoma	14 "	
32.	1	"	14 "	
33.	1	"	10 "	
34.	18	Menhaden	4-5 inch	
35	1	Dorosoma	14 "	
36	4	"	8 "	
37.	1	Xystaema cinereum	7 "	
38.	4	Dorosoma	10 "	
39.	1	"	10 "	
40.	28	Menhaden	3-5 inch	
41.	5	Dorosoma	10 "	
42.	1	"	12 "	
43.	1	"	10 "	

44.	1	Dorosoma	9 inch	
45.	1	"	12 "	
46.	2	"	10 "	
47.	3	"	10 "	
48	1	"	12 "	
49	1	"	14 "	
50	3	"	10 "	
51.	1	"	8 "	
52.	2	"	8 "	one 10 inch
53.	1	"	14 "	
54.	1	"	14 "	
55.	1	"	14 "	
56.	12	"	6 "	
57.	1	"	14 "	four 6 inch.
58.	12	Menhaden	4-5 "	
59.	14	Dorosoma	6-8 "	
60.	6	"	6 "	
61.	1	"	14 "	
62.	3	"	8 "	
63.	2	"	6 "	
64.	2	"	6 "	
65.	2	"	6 "	
66.	1	"	10 "	
67.	2	"	14 "	
68.	3	Menhaden	5 "	
69.	2	Dorosoma	12 "	
70	1	"	14 "	
71.	2	"	14 "	
72.	25	Menhaden	5-6 "	2 Xyrtaema cinereum.
73.	1	Dorosoma	12 "	
74.	1	"	12 "	
75.	4	Clupea	8 "	1 Menhaden 8 inch

76. 3 Chapra 8 inch
77. 2 Menhaden 6 "
78 2 Mersama 6 "

February 10 Monday.

This morning the wind was in the north and it remained raw and cold all day with a cold wind blowing. It was not advisable to visit Pelican Island under these circumstances as the young pelicans feel the cold quickly and die unless covered by the adults. As my being there causes more or less disturbance I did not go across today. This forenoon I spent in working on notes and in caring for a few specimens.

In the afternoon I walked north of Sebastian and made a collection of insects.

A ridge of white sand about 20 to 40 feet above sea level parallels the beach here and extends back inland in a broad flat top. This is grown with Live Oak, Scrub Palmettos and on the summit has an open growth of Sand Pine (Pinus Clausa) and Long-leaved Pine. Clearing have been made on the slope toward the water and have been planted in

citrus fruits.

Found birds fairly common throughout here & collected a fair number of insects by beating. Returned to town at four.

February 11, Tuesday.

This morning it was very cold, being just above frost as a matter of fact. The wind was still in the north and as it was yet too cold to go across to Pelican Island I walked out south of town and made another collection of insects by beating. I find that dead hanging fronds of Palmetto are fine places for hibernating insects. Natural plants are in bloom but insects are scarce at them. No thrips are found in flowers as yet, though I obtained a few black ones by beating.

Collected aerial birds today and returned to town at four to care for specimens.

And sheltered places it was warm and pleasant today but elsewhere was cold and hard. Worked on notes this evening.

February 12, Wednesday.

The sky was clear this morning with a light wind from the west and it had again become warm. I walked in out to Krogels as early as I could and crossed to the Pelican rookery. Landed for a few minutes on the open island and then crossed to the main colony in the mangroves. The last two days of cold weather apparently have driven the young pelicans home both to give up what they had finally secured. Until noon I had poor success in identifying fish as I could get none to identify but later I had better success. I remained here until about 2:30 and then crossed again to the main open island and made a round of it.

As before I found that a good many adult pelicans would disgorge before leaving the eggs that they were incubating like the coyote. The pelican seems to have the faculty of carrying food in the stomach for some time without any digestive action. I saw well grown young that had just been fed frequently secured fish that were entirely unacted upon as yet.

Following is data on individual mosq secured today:

1.	4	Dorosoma cyprediaeum	8 inch		
2.	1	"	12 "		
3.	4	Brevoortia tyrannus	5 "		
4.	2	Dorosoma	12 "		
5.	1	"	14 "		
6	1	"	14 inch	10	8 Ctenophorus
	3	Menhaden	4 inch.		
7.	1	Dorosoma	12 inch		
8.	5	Menhaden	5 "		
9.	1	Dorosoma	12 "		
10.	1	"	10 "		
11.	1	"	12 "		
12.	1	"	12 "		
13.	2	"	10 "		
14.	1	"	12 "		
15.	1	"	12 "		
16.	6	"	8-10 "		
17.	1	"	15 "		
18.	2	"	8 "		
19.	2	"	15 "		
20.	3	"	12 "		
21.	4	"	10 "		
22.	1	"	15 "		
23.	1	"	12 "		
24.	1	"	10 "		
25.	1	"	8 "		
26.	3	"	8 "	6	Xystamacinum 4 inch
27.	14	Menhaden	5 "		
28.	1	Dorosoma	14 "		
29.	7	"	8 "		
30	2	"	15 "		

31.	31	Menhaden	4-5 inch, 2 Dorosoma 8 inch
32.	1	Dorosoma	15 "
33.	1	"	15 "
34.	1	"	15 "
35.	3	"	8 "
36.	1	"	14 "
37.	1	"	14 "
38.	1	"	14 "
39.	1	"	12 "
40.	1	"	14 "
41.	2	"	14 "
42	1	"	12 "
43.	4	Menhaden	4-5 in.
44.	2	Dorosoma	12 "
45.	1	"	12 "
46.	1	"	12 "
47.	2	"	5 "
48.	1	"	15 "
49.	3	"	8 "
50.	1 Mugil cephalus 8 in. 1 Siamia vallata 8 in. 25 Cyprinodon carpio		
51.	2	Dorosoma	8 in
52.	4	"	8 "
53	1	"	12 "
54.	1	"	15 "
55.	1	"	12 "
56.	1	"	8 "
57.	1	"	12 "
58.	1	"	15 "
59.	1	Xystaema cinereum	6 "
60.	2	Dorosoma	6 "
61.	1	"	8 "

62. 1 Dorosoma 8 inch
63. 33 Menhaden 3½-4 inch
64. 1 Dorosoma 12 " one 8 inch
65. 1 " 12 " "
66. 1 " 10 " 2 Menhaden 4 inch

Returned to the mainland with a favoring east breze about 4:30. Walked up to Sebastian and there repaired my boot that had a hole in it. There is standing water everywhere in the mangroves so that I find it necessary to wear boots in the looking.

Worked on notes in the evening.

7.6.13. Thursday.

This morning. The sky was overcast and rain was threatening. As the wind was blowing strong from the east Warden Kroegel towed me. skiff over to the island for me.

Food is scarce causing the pelicans at present I imagine as I find it increasingly more difficult to get the shrimp to regurgitate. Today both adults and the young seemed eager for the cast up fish and seized it sometimes before the unfortunate possessor was able to drop it. On the open island of. found this true in particular and at times I had difficulty in saving the fish at all. I worked continuously

until June and secured the following data:

1.	1	Dorosoma cepedianum	12 inch.
2.	2	"	10 "
3.	1	"	12 "
4.	1	"	8 "
5.	1	"	12 "
6.	2	"	6 "
7.	2	"	6 "
8.	1	"	6 "
9.	1	"	12 "
10.	1	"	12 "
11.	4	"	10 inch, 1 Brevoortia 5 in.
12.	2	"	10 " one 12 inch
13.	3	"	10 "
14.	1	"	14 "
15.	2	"	12 "
16.	1	Mugil cephalus	12 "
17.	1	Dorosoma	14 "
18.	3	"	8 "
19.	4	"	6 "
20.	4	Brevoortia	5 "
21.	1	Dorosoma	10 "
22.	5	"	5 "
23.	1	"	15 " one 10 inch
24.	1	"	12 "
25.	2	"	8 "
26.	1	"	15 " or 6 in.
27.	1	"	12 "
28.	2	"	10 "
29.	1	"	15 "
30.	1	"	10 "

31.	1	Dorosoma	8 in	
32.	2	"	8 "	
33.	1	"	8 "	
34.	1	Clupea	8 "	
35.	1	"	8 "	
36.	1	Dorosoma	8 "	
37.	3	"	10 "	
38.	4	"	8 "	
39.	6	Brevoortia	4-5 "	
40.	1	Dorosoma	12 "	
41.	2	"	8 "	
42.	1	"	12 "	
43.	3	"	8 "	
44.	1	"	12 "	
45.	1	"	10 "	
46.	5	"	8 "	
47.	4	"	8 "	1 Brevoortia 4 in
48.	1	"	10 "	
49.	1	"	8 "	
50.	1	"	15 "	
51.	2	"	8 "	1 Scianeng ocellata 8 in
				1 Brevoortia 5 in
52.	3	"	6 "	
53.	12	Brevoortia	6 "	
54.	8	Dorosoma	6 "	
55.	7	"	8 "	
56.	1	"	15 "	
57.	1	"	15 "	
58.	6	"	8 "	
59.	1	"	15 "	
60.	1	"	12 "	
61.	1	"	14 "	one 8 in

62. 5 Dorsana 6 in
63. 1 " 8 "
64 2 " 12 "

The adults did not come in with fish in any number until noon.

K Bergels came for me at 4:30 and towed me back.

Much warmer this evening. Worked on notes after Supper.

February 14, Friday.

A heavy rain fell last night and the sky was overcast during much of the forenoon.

I crossed this morning at nine in a launch to the peninsula opposite Sebastian. This peninsula varies in width from ½ mile or more to 100 yards and is a long neck of land separating the Indian River from the Atlantic. It is simply a long sand ridge thrown up by the action of the waves. It is covered with Cabbage Palmettos and a coarse grass.

The outer beach is of hard sand and is very steep. I found a few sanderlings and terns along it but not much else. Emerita talpoida (Say)

A peculiar crab, ~~Ephyra~~ was found on the edge of the surf here running down after receding waves and burying itself in the

Sand.

I remained there until four observing the flight of the pilleans along shore. On returning it was rather rough and the launch pitched considerably. Water-

Palm of two tropical districts, a small tree with a brown stem pinnate fronds a West Indian species and the seed of a Cuban Manicaria saccata 1½ in. in diameter. This palm grows in swamps near the coast from Nicaragua to Paraguay. The seeds are hard and woody & found their commercial

February 15, Saturday.

This morning I packed a box of specimens to send in and straightened out my outfit.

Had further talk with Mr. Kroegel this afternoon and packed up. Worked on notes for a time. Had my baggage sent to the station and expected to get away at 4:24. Because a freight wreck at Micco Station was forced to remain overnight in Sebastian.

February 16, Sunday.

Was up this morning to catch a train at 6:22 but did not get away until 9:30. Cold and windy this morning.

Travelled south to Fort Lauderdale arriving at 3:15 P.M. Registered at the New Riber Hotel.

Fort Lauderdale is a very pleasant place located on a small dredged river leading back into the Everglades.

it still continued cold. I walked out a short distance and collected a few insects but found it too cold to do much.

February 17, Monday.

Started out this morning to secure information regarding rats damaging sugar cane. According to the memorandum in hand this had occurred on the Davie tract. But inquiry brought no result in that direction.

R. J. Snow however informed me that rats had worked at cane at S. J. Carson's place south of Fort Lauderdale. He introduced me to Mr. B. Parham who corroborated his statement and took me out to the place at eleven where I met Mr. Carson. The damage was evident enough on a small tract and after a look around I returned to town at noon and got an outfit for trapping and poisoning together and then hired a jitney to take me back again to the Carson place.

Spent the afternoon here working in the cane returning to town with Mr. Carson at six.

Worked on notes this evening.

Set out a line of traps in the cane and caught several

Sigmodon hispidus and Oryzomys palustris. My first impression was that damage was due to Oryzomys.
cold today frost this morning.

Feb. 18, Tuesday.

Was up this morning at Six fifteen and rode out with Mr Baram at Seven to his place where I worked until Six this evening.

The area where work was carried on is in a reclaimed tract of muck land at the edge of the Everglades. The soil is dark and black and carries much humus. A large canal runs up from the river to the tract and water in this rises and falls with the tide. Ditches dug just wide and four feet deep, some carrying running water traverse the entire area at intervals of 30 to 40 rods and smaller ditches three to four feet wide are laterals to these. about 10-20 rods apart so that the entire area is cut up into a series of squares.

About half of this was cultivated last year, this is virgin not. The cultivated spaces were covered with a dense growth of weeds 6 to 10 feet high, with much rubbish beneath them.

Rubbish had been allowed to collect along the banks of the ditches.

Mr. Carson had 7 acres in cane; N. B. Hamlin 4 acres, Mr. Friday 2 acres and Mrs Lawrence 2 acres. These were all scattered. Cane growing is being tried in here as an experiment and it is probable that considerable will be grown here. This crop is being tried at many places around Lake Okeechobee.

We went first over my trap line and found a number of Sigmodon hispidus and Oryzomys palustris. Examination of stomachs of these showed that the bulk of the damage was done by Sigmodon and observation showed that this animal was present here in great abundance far outnumbering the other.

This animal proved to be active to a considerable extent by day and I saw them frequently running about through the cane. Their principal habitations and runs were along the slightly elevated ditch borders. Broad beaten grass lined runways were found through the grass and rubbish here sometimes continuous for ten or fifteen feet but more often definitely outlined for short distances due to their fast

only. From these poorly marked trails led out into the cane. The animals seemed to live in colonies. When the ground for for a six foot was made made soft by the rains burrows. The base for these runs were large holes dug in the tops of the ditch banks by crabs. The burrows of the bottoms of the ditches found often into mud and water and long runs were found here so that the animals evidently pay little attention to wet.

All through this cane field were signs of the cuttings of these animals. The stalks were cut down at the base by being gnawed completely through. Sometimes the work stopped here again when the stalks lay prostrate every section would be cut off completely across the node leaving the whole connected only by a band of the tough outer fibre. The tougher outer fibres were left in little piles and the rest was gone. Sometimes cuts were made in arching stalks at a distance of 18 inches from the earth. These cut stalks were in evidence everywhere.

The rice rat (Oryzomys) also ate a small amount of cane apparently

at cuttings made by Sigmodon.
I saw a number of Swamp Rabbits here and found their droppings all through. This field is abundant. These droppings were compound in part of sugar cane fibre as shown by examination under the microscope. Stomachs of Sigmodon examined showed pulp in abundance and the caecal bag that was sent to the coast. The stomach of this animal is very large, much larger than in Oryzomys.
It was very warm and pleasant today and I found insects abundant so that I filled my cyanide bottle. Collecting is just beginning to be good.
About ten I walked across to a small area grown to truck tomatoes & peppers belonging to B. F. Gates. Mr. Gates had reported that rabbits had injured these & gave some places where the fruit had been eaten and also where the plants had been topped by Swamp rabbits.
Vegetation here showed considerable effect of the frost.
And this afternoon I shot an adult Swamp rabbit with my collecting pistol. This animal (Sylvilagus palustris (paludicola)

Contained four small embryos 12 mm long and was apparently sucking when the stomach was functioning. This rabbit was very dark in color and presented a peculiar appearance. The small head, short ears, short legs and very heavy body made it appear almost agouti like. The tail showed no white. These rabbits travel with a rush through the rubbish that carries them low down above the ground. They usually run forty or fifty feet and then stop. They do not give long hops at all and are seldom. I evidently when the growth is at all high.

This afternoon I cut about three quarts of sweet potato cubes ½ inch square and poisoned them with strychnine by which had been added an equal amount of sodium bicarbonate. These baits were distributed singly in holes and scattered along the runs for 10 feet apart.

Walked in to town at 4:20 and worked until seven on miscellaneous things.

Wired A. Poyner, Knotts Island and

J. B. White Water Lily N.C. asking what
Many swans were sick and when
the swans would go north.
Worked in note this evening.

Wednesday Feb. 19.

Was up at six fifteen this
morning and went out with
Mr. Carson again.
The sky was overcast and
the wind in the east for most
of the days.
I went carefully over the
ground poisoned yesterday and
picked up 12 dead Sigmodon.
Poisoned was distributed along the
ditch banks. 50% or more of
the baits had been nibbled and
some nearly entirely eaten, so that
the animals took the baits
freely. Cover is thick and holes
abundant so that it is difficult
to judge results without trapping.
and I have not time for this. I
consider the bait used successful
but believe it would be improved
by use of Saccharin. yesterday
On my traps nearly every
animal secured was eaten
sometimes almost destroyed by
other rodents. This occurred in
only 1/3 of those poisoned, and

indication of the efficacy of the poison.

Collected more insects today but found everything quiet as the sun was obscured.

At noon I mixed poisoned bran-oatmeal using strychnin and saccharin. and distributed it placing pinches of the bait in the crevices and runways along the ditch banks.

The draining of this area has permitted a great increase in Sigmodon, & joins confined before to limited areas; which the abundance of food also has helped to increase. They will give considerable trouble but should be readily poisoned out.

I have examined three old adult males in which the testes have atrophied though the accessory sexual glands and penis are fully developed. The vesiculae seminalis are large.

About 3:30 I walked in to town. Found a Willow in bloom but few insects as it became very cold & cloudy. Some fine Diptera however and collected a Bigossoma lateralis.

Wired the office regarding

further work here.

Worked in notes this evening. Estimated damage to corn from Sigmodon as follows.

S.J. Carson	2 acres	total loss.
	3 "	25% "
	2 "	50% "
H. B. Hamlin	4 "	2%
Mr. Friday	2 "	5%
Mrs. Lawhorn	2 "	5%

Damage is due in part to fact that corn should have been cut in December but has been left stand as there was no mill to grind the corn.

On 5 acres belonging to Carson the stand is only one half what it should be. It seems possible that this is due to destruction of eggs & small shoots by Sigmodon. My legs are covered with Chiggers bites. Used sulphur today.

February 20, Thursday.

Was up this morning shortly after six and went out with Mr. Carson at seven. Made a hasty circuit of the area poisoned with salmeal yesterday and picked up twelve dead Sigmodon. Also found a number of young animals dead of same that I poisoned sweet potato

set out.

Returned to town at eight and packed up. Forwarded an express box to the office.

Wrote a brief report of the rodent work and forwarded it to the office.

Left Fort Lauderdale, Fla., via Florida East Coast at 12:00 noon. Went via Miami to Homestead. Made reservation in Miami to leave 10:40 P.M. on February 25 for the north.

Arrived at Homestead at 3:00 P.M. and remained until 4:00. No instructions from the office. So left in a jiffy for Paradise Key. A good sand road led down across the country. For the first stretch this showed Pines Caribaea with an undergrowth of Saw Palmetto. Frequent fires had destroyed a large part of the scrub. Below here more frequent openings grown with saw grass which became larger and larger forming the true everglades.

Arrived at Paradise Key (Royal Palm State Park) at 4:40 and there was able to secure accommodations. Found Snyder, Barbut and Schwarz there.

The Park here contains 1900 acres

or more and embraces all of Paradise Key. The formation is of oolitic limestone which crops out very near the surface so that the soil is thin though very productive.

The lodge is very comfortable and well fitted up. I have hot and cold running water in my room and was able to take the first real hot bath I have had in a month.

I walked out at five and tried a little collecting but did not get much, nor saw many insects flying at night.

On the evening I walked out to a large opening and there saw my first pair of limpkins and watched them feeding.

February 21, Friday.

Was out this morning shortly after six and walked out east along the road leading through the open glade to the bird life. It was cool and pleasant with the air calm. The vegetation here is almost typically that of Porto Rico and I could almost imagine myself walking along one of the roads on that island.

The early morning was beautiful with a lively chatter of sparrows and melodious bird calls coming from the hammock. The Cranes called, White ibis quacked and grunted and I heard the songs of Cardinals and Wrens and Vireos.

After breakfast Snyder and I worked out through the hammock. I collected by beating with fair success, secured a nice thrips for Myrica cerifera.

Returned at noon and then after dinner Snyder, Barber and I went in skiff to Head Picker Slough and poled out through the bonets in a small skow. After working up through for a ways I walked back through sawgrass and willows higher than my head to another branch of the slough. As I came out a limpkin passed over head and I dropped him stone dead at 50 yards with a load of eights. In crossing the channel I slipped in a hole and got one boot full but did not mind that as I got to the bird in time to take the body temperature. After caring for it I saw another wading in a cut two a hundred yards away

Small pools contained many Jordanella floridae and Fundulus majalis. Several Planorbis during walk

A carefully made through a dismally thick mass of Phragmites, willows and similar growth brought me within 60 yards and a second load of eights brought this one out. On crossing this I slipped in a hole up to my waist but did not mind a trifle like that. My note book was in my hip pocket but strange to remark was uninjured by the wet.

The two birds made a fine pair and gave me more satisfaction than any I have taken in a long time.

Did some further collecting by beating and then returned for supper.

At 8:30 Snyder and I took a table out and set up a light. No moths came so we began shaking the small trees over the table. This method proved so successful that

February 22, Saturday.

This morning I walked out early to make some observations on birds returning to an eight o'clock breakfast. Following this I skinned out the kingfishers taken yesterday and cared for some insect specimens. This

work and work on notes required until noon.

After dinner Snyder and I collected insects through an old opening or clearing south of the house until we came out on a prairie grown with sawgrass and with scattered clumps of cypress. From here we worked back to the hammock to the base of two Royal Palms and later I visited three others near by. Made careful search in the rubbish at the base of the palms but secured comparatively little in the way of insects. Many specimens were collected by beating hammock in the open prairie.

This evening I collected at light again but secured comparatively little. Ephemerids and a small water bug are abundant but little else comes.
a specimen of Systenus miliarius taken today.

February 23, Sunday.

This morning we were out at daybreak and went south along the newly made road as far as it was passable. There were small areas of hammock scattered all through wide open wet glade country grown in part to sawgrass and in part open apparently covered with water in wet seasons. At one place

Coll. and Engelmann Vaseata Bong. & Muscadinia popularmeinum Say.

was a stand of cypress that grew to fair size in hammocks but was decaparate in scattered growth over the swamp so that all trees there would not average more than six or eight feet tall and many were reduced in altitude to two feet ~~by fires~~ were just leaving out. A canal 15 or 20 feet wide led along one side of the road and Kingfishers were common along it.

A small palm known as the Saw Cabbage palmetto (Paurotis Wrighti) grew here in small clumps in hammocks. The trees had slender trunks with the leave bases persistant and a head small in size composed of a small number of medium sized fans. The short petioles were margined with strong curved hooks. The trees grew from six to 25 feet in height. The species is peculiar in that it spreads by shooting from the base so that it is always found in clump. There were many ~~very~~ dead leaves on it and it seemed to promise good collecting.

Fog rendered early morning collecting unprofitable but I did fairly well during the day.

Walked out and scared a number of the Ampullarias eaten by humphins.

Ampullaria depressa.

February 24, Monday.

Made an early start this morning, and drove to Simms Hammock, above Homestead near Princetons. Here we collected specimens of Zorotypus, a termite like insect belonging to the order Zoraptera. These creatures resemble small termites but are smaller and more rapid in movement. They were found directly under the bark and prostrate logs of Pinus Caribaea.

Returned to Homestead for mail and then went back to Paradise Key.

Snyder and I went out north across the prairie and collected by beating with fair success.

In a small clump of willows we discovered an ant and that made a nest of paper like material suspended two feet from the ground in a willow. This nest was 6 inches long and 4 inches broad. When disturbed the ants came out with abdomen raised threateningly. When touched two milky drops were exuded on the top of the abdomen at the posterior end. This had a slight

[(Crematogaster ~~lineolata~~ sp. nov. Pergande) Side Views]

Described as Crematogaster atkinsoni by W.M. Wheeler, Psyche, 1919, p. 108, partly from this material.

of formic acid and thought it had no effect on my fingers when I chanced to just rub my finger on my neck & felt a strong burning sensation that persisted for two hours. A second nest was found.

Worked until about 4 P.M. preparing for an expedition into the Everglades below toward Cape Sable. Had expected to leave for North Carolina but [illegible] word received had considered it best to abandon this trip. And Continue here.

Syntherus philainis taken today. Fairly common here around open glades. collected Legnus fasciatus Mull + Euglenidina truncata Say.

February 25, Tuesday.

This morning we left about eight (Snyder, Barber and I) and were driven southwest about 20 miles to the end of the Tassabaha road on the Tamiami highway. From here we walked on south for about 4 miles over the rough unfinished roadbed until we reached the dredge that is digging a ditch and throwing out the excavated rock to form the roadway.

The rock here lies from six inch to two just below the surface and is a porous limestone. The dredge tears out a channel 20 feet wide and six or eight feet deep and as much

immediately fills up with water.

After taking bearings we went on from the dredge and in half a mile were entirely out of sight of it travelling through an area that had no trails and that showed no signs of the hand of man. Areas of wet hammock were scattered along through a region of winding channels and lagoons where the water was from knee deep to waist deep. Growths of red mangroves some dense and some thin bordered these or grew through the lagoons while open spaces were filled with saw grass most of which was above my waist. Clumps of the Saw cabbage Palmetto (Paurotis wrightii) were scattered along growing by themselves on small slightly elevated knolls or at the borders of hammocks.

The Black mangrove and the Poison wood (Metopium) were common in the hammocks.

At first we endeavored to skirt the lagoons and push through the sawgrass or with a machete cut a trail through the mangroves, wading only

When forced to do so. Later however we found that travel was easier through the water and when channels were encountered that led in the direction that we were travelling we waded along them frequently in water to my body. These lagoons were filled with thin mud with six inches to a foot of water above it. After about four miles the Palmetto disappeared and the mangrove growth increased making travel very difficult. We went in for another hour but as the region became more and more swampy decided to return and camp at some small hammock. We were then in a great swamp apparently connecting West Lake with White Water Bay and were apparently six miles or two west of W. West Lake. The sun was intensely hot and we perspired heavily. Sawgrass was very troublesome so that I had to hold my hands up in travelling and all had many cuts from using the machete.

About 5:10 we found a small knoll twenty feet across

and cleared a small area for a camp and collected wood for fire. The place was promptly named Wet-ass Camp for obvious reasons. After eating we spent six hours, off and on, in getting partly dry and then lay down to sleep. We had no blankets but the night was warm and they were not missed. Our knoll however offered too flat surfaces and that we rolled around more or less all night. Mosquitos were bad too and our only recourse was to sleep with our heads and hands in insect nets.

At dusk a flight of White Ibis came up from the Southeast and a few Egrets and Great White Herons accompanied them. I had one limpkin and a few Anhingas and shot an Anhinga and a White Ibis. These added to my pack did not aid in walking through the mud.

At night we heard the roar of surf toward Cape Sable. Cougars were common today.

February 26, Wednesday.

This morning were out at

six thirty after a fairly good rest considering the mosquitos. I skinned out my birds and then collected what wood I could in Parrotis. The hanging fronds of this palm had seemed to promise much but proved very barren.

Birds are few in number through this region. I was rather surprised to find White-eyed Towhees and White-eyed Vireos common through the wet hammocks in this swamp. They were very shy and were seldom or never seen, though they called very loud. A hard fog-mist. The wind was in the northwest at daybreak and swung the flight line of returning ibis and egrets to toward the hammock. I watched for a shot at Great White Herons but none came within range.

About ten we started on back: I set a course a little north of our old line in order to be sure and get to the road and not pass the line of the highway below the bridge. This was wisdom but led us into much difficult travel. We were soon

in the hammock country again and found the saw grass growth much heavier. Clumps or bunches of Cabbage palmetto appeared and we had to make frequent detours to avoid the hammocks through which travel was almost impossible.

Last night we drank the vilest smelling water from pools in the mangroves. We attempted to render it more palatable by squeezing the juice of a grape fruit in it but the acid only intensified the salt. Barber drug as well as me sick but the water from this stunk horribly with H_2S. About noon today I found a shallow pool in the middle of a sand grass area that showed a freshening in its plant growth and we found this water sweet and good.

It was impossible to travel in a direct course and as the sun was under a cloud difficult to travel in a given direction. There

were no landmarks and the hammocks offered no guiding marks. About one I found a tall isolated black mangrove and climbing up was pleased to see the line of the road only two hundred yards away. The saw grass had increased here so that it was only with difficulty that I could break a path and we had to stop for breath every hundred yards. We finally came out slightly more than a quarter of a mile above the dredge.

A launch from the dredge set us across the channel and we undressed washed our clothing and had a swim. My trousers were almost cut through and my ~~shoes~~ toes of my shoes had worn through from the saw grass. The knees were entirely gone in Snyder's trousers. Three days travel here would wear out most of a man's clothing.

We saw a ten foot alligator here in a pool at one side. It lay

watching us for several minutes floating with tail moving slowly. Then slowly submerged until only the eyes and snout were visible.

The launch returned for us later and took us to the finished road where Mr. Mosier met us and we returned to Paradise Ry arriving about six. All drank copiously of the good water as we were in need of it after perspiring so heavily. The sun had been very warm but it had not sunburned.

February 27, Thursday.

Rain threatening today. Cared for specimens, guns, etc this forenoon. In the afternoon went out after insects. The tourist travel here at the park is heavy and is the only drawback to the place as it makes our meal hours very irregular. We had no dinner today until four P. M.

Was out with Mr. Schwarz this evening and through his knowledge was able to pick up several insects not taken previously.

Another lumpkin was seen in camp coming below where I secured the other two

Hyla cinerea fairly common, one at Slough. Ten taken.

The Slough known as Dead Pecker Slough so named from a dead Ivory-bill said to have been found it has been reclaimed. The head of Taylor River by Dr. Small. It has several meanders and has the bed filled with Pontederia and Lilies while the banks are lined with Lilies. Though only two hundred and fifty or three hundred yards long it is always of interest and its birds are intriguing as there is no telling what bird may flush from beyond them.

This evening I packed in readiness to leave tomorrow. Have some intention of going to Key West.

February 28, Friday.

Completed my preparations for departure this morning. I have three small ground rattlesnakes that I am planning to take north alive. These little fellows are found in the roads or at the banks of the prairies. They have only 3 to 5 rattles, I refuse to count the inevitable "button" separately and the rattles are very small so that their vibration produces a very slight sound. In handling them it is necessary to

remember that they are capable of biting
the short upper jaw down so that it
would be possible to sink one of the
elongated fangs in a finger placed
under the throat. They must always
be grasped ~~from~~ by the sides of the
neck immediately behind the head.

Left the Park at ten a.m. and
reached Homestead at eleven. Found
all hotels full and ~~had~~ finally had my
baggage left at the station. Had wanted
to stay here in order to collect. At room
Pop Evans who operates the hotel told
me that he had found quarters for me
in a private house - welcome news.

Spent the whole afternoon in getting
out my monthly expense account.

Collected at lights this evening
and secured some very good material.

~~February 24~~ March 1, Saturday.

This morning I worked on notes until
nine and then took a bus north
to Naranja. Here I went one half mile
south and one half mile west and
worked until three collecting in
and around a large hammock.

Am now talking log of Pinus
Caribaea I found a good ~~one~~ [illegible]

colony of the peculiar insect known as Zorotypus. These are termite like animals belonging to the order Zoraptera. The bark on the log was loosening and on prying it up I found the Zorotypus. They were quick and ran rapidly so that it was difficult to collect them. They were found in two or three or sometimes half a dozen together distributed along the log for a distance of 30 ft. I found several of the pigmented form in company with the other and collected one Pselaphid beetle that was with them and may have been an inquiline as no ants were near.

Returned to Homestead at three and cared for material.

Collected more insects at light this evening.

March 2, Sunday.

This morning I got out early and took an early train south getting

Expense Feb. 1-28, 1919.

Cash expense	$17.50
Trans. requests	18.15
	135.65

Amount available Feb. 1	256.35
	135.65
Unexpended balance.	120.70

off at Jewfish Drawbridge and walking across to Key Largo. Below Florida City the track led through the Everglades with open saw grass country interspersed with many small hammocks. Farther down this region gave way to open mangroves which became denser and more swampy until Jewfish creek was reached.

On Key Largo the ground was grown with mangroves at first but soon became higher and I entered an extensive region of hammock. The island here was composed of limestone containing much coral on which was a thin coating of soil. An abundant tropical vegetation covered this. A part of this hammock had been burned a number of years ago but to the north I found a fine growth of Elaphrium Simaruba and a few

Collected Melicina orbicalata Say, Sand Beach Tequila ossifragi (2) and J common in dunes

Cras. The road was being cut through the hammock and I collected insects taking it with fair success securing two good species of Longicorns.

Birds were not much in evidence, but it was intensely hot and more may have been out during the cooler parts of the day. The type of country resembled that of limestone hills in Porto Rico. Squirrels, Coons and Wildcats are said to be common, with many rats. I saw a flock of seven cedar Waxwings feeding on the abundant wild grapes.

Met Mr. Gladden engineer in charge of the road making for the Seminole construction Company. Walking was very difficult over the rough limestone and my shoes were cut up badly.

Returned to Jupiter at one and from there went back to Hamstead. Cared for my specimens and did

some writing. Collected more insects at light this evening.

Many Prairie Warblers seen singing at Jupiter in the mangroves

March 3, Monday.

This morning I packed up and worked for a short time in notes. Took a bus at 4:30 for Miami, reaching there at 11:30. Purchased a ticket for Tallahassee and secured Pullman accommodations to Jacksonville. Had dinner and performed one or two minor errands. About two I called at the office of the Everglades Sugar and Land Company for information regarding damage to sugar cane by rats on their property. Was unable to see any of the officers and I judge that there is little damage at present as no one seemed much interested in the matter. Learned that their land is located near Davie about Fort Lauderdale in the region where I experimented with this same work.

Walked on up the street there and was fortunate enough to

encounter J. E. Snyder. As he had nothing in particular on hand and as he was also going to Jacksonville on my train we spent the afternoon together. We crossed by boat to Miami Beach and I had the pleasure of a swim in the ocean. The day had been extremely hot and the water was pleasant. In addition I was able to make some interesting observations on pelicans. Later we walked along for a mile along the beach and collected two species of meridids, that were pale in coloration and may belong to the beach fauna. A dipteran and a light Cicindela belonging to this fauna were not encountered, probably because it is still too early in the season for them.

Returned to town by bus. Saw individuals of Marila affinis and Mergus americanus.

This evening we saw a film showing life and customs of the Bolivian Islands (engineered by

Martin Johnston). Very interesting.
left Miami via Florida East Coast
at 10:40 P.M.

I have two living specimens of
the small ground rattler that I
am taking back with me in a
small can. Was able to secure an
uppers only and so took the
snakes up with me that they might
come to no harm. The train was
handled very roughly in the night
and once when awakened I heard
a low buzz from my prisoners.

March 4, Tuesday.

Cool and pleasant this morning
a welcome change from the heat
of the South. Paradoxical as it may
seem we found the season as
indicated by the vegetation farther
advanced as we came north. Above
Ormond Pear trees were in bloom and
below Jacksonville many Sassafras
and a few peach trees in blossom were
noted.

The difference between Pinus caribaea
of the south and P. palustris of this

region is marked. The former grows in more slender form, is less branched and is lighter in color.

Arrived at Jacksonville at 11:30 A.M. Secured pullman accommodations for Tallahassee and then went up town for dinner after checking my baggage including my snakes. At the station worked and rested at the public library all afternoon.

Left ~~Tallahassee~~ Jacksonville 6:10 P.M.

March 5, Wednesday

Arrived Tallahassee 1:00 a.m. remaining in the Pullman until seven a.m. Then registered at the Leon Hotel.

Day threatening with sky overcast and rain in the offing.

Tallahassee is a quaint place built on a series of rolling red clay hills. Along the streets are many magnificent live oaks some of them three and four feet in diameter with broad wide spreading tops.

At nine thirty I called at

Expense March 1-7 inclusive

Form 4	26.90
Trans reg.	53.50
Total	80.40

Amount available March. 120.70
80.40
40.30

office of J. A. Williams, State Shellfish Commissioner but learned that he was cruising along the east coast. Was able to get nothing out of his clerks. Called then at the office of the State Department of Agriculture. There it learned that last year 4000 licenses were issued to fishing boats, meaning that 10,000 or 12,000 men are engaged in the fishing industry.

Called on State Geologist E. H. Sellards but found that he was in Texas. Vero bird material was inaccessible.

Secured a ticket to Washington. Worked on notes correspondence & expense account in afternoon.

March 6, Thursday.

Was called this morning at 3:15 A.M. Left at 4:00 via A.C.L. Arrived Jacksonville 10:35 A.M and left via A.C.L. at 1:00 P.M

Pullmans crowded with tourists.

March 7, Friday.

Arrived Washington 12:15 P.M.
and went at once to office.

May 15, 1919, Thursday.

Left Washington via B. & O. at 8:00 P.M. in company with H. H. T. Jackson and N. N. Kent.

May 16, Friday.

Arrived Chicago at 4:45 P.M. Met Mr. Walter Hough on the train. Spent a pleasant day in travel. Left Chicago via A. T. & S. F. at 10:30 P.M. in company with Kent and Mr Hough.

May 17, Saturday.

Cool and pleasant today. Arrived Lawrence, Kansas at 11:30 A.M. Every thing green and fresh. There are many birds in the trees and yards, many more than in Washington.

May 20, Tuesday.

Went out this morning with Bunker and Chas. C. Spaeth to cabin at Washington Creek and spent the day. The bulk of migrant birds have passed but some of the late arrivals, i.e. Black-Bell and Tennessee Warblers are still going through. Vegetation is at its maximum growth and the country is green and

fresh in appearance from the rains. Cool and pleasant today but windy so that it was difficult to find small birds in the tops of the trees.

The contrast in abundance of birds is very noticeable, between here and Washington.

May 22, Thursday.

This morning Bunker and I went down into the Armstrong timber and did some collecting. Still cool and pleasant. Birds abundant.

May 23, Friday.

Tonight I saw the following species of birds from the steps of the University Museum between 8:00 and 8:20 P.M.

Nighthawk 5	Bronzed grackle
Chimney Swift	Orchard Oriole
Kingbird	Wood Thrush
Robin	Catbird
Chipping Sparrow	Bluejay
English "	Redwing
Purple Martin	Mourning Dove.

With Bunker I met Dr. John Rutland and Wm Hamilton and discussed their plans for an Alaskan trip this coming summer.

May 24, Saturday.

This morning I visited our old camp on Washington creek again in company with Bunker, Mark Hannah and W. Brown. We went out in an auto making the trip in about 35 minutes a great contrast to the old days when we made the same journey afoot or in a buggy.

It turned warmer today and was rather humid.

Bunker has the cabin fitted with stove, bed and camp equipment, with all of the old plaster knocked down and the place cleaned up in general. Weeds are growing high here and have choked out much of the fine grass cover. A Virginia creeper covers much of the north side of the house.

Buckeyes are abundant in the draws with much buck brush. I see Rhus glabra and R. copallina on the hills. Papaws are common. There is much hickory, and slippery elm. Wild grape is abundant. Poison ivy has

than formerly. The hills and pastures that formerly were are now heavily grown with brush.

We hunted down through the Elliott timber and then returned to the cabin for dinner. Remained until five and then returned to town. Listed 62 species of birds with no particular effort to secure a large number.

Saw Ermines (Weasels?) and a Blue racer.

Several Fox squirrels noted. Use Citellus tridecemlineatus seen at Museum in Canton.

May 25 Sunday.

This afternoon Scott and the folks went out south of town and on across to Coal Creek near the foot of Bliss Mound. The stream here is nearly as rich as the Wakarusa. I examined an old shaft 20 feet deep where coal had been mined.

May 20, Friday.

This morning I arranged for tickets and then with the H. Clowes went out on Washington Creek and spent the day. Scott and I picked for a while in Washington Creek and caught, some small Bullheads and two species of Lepomis, one of which I put up in formalin. This one had a prominent black spot on the prolonged operculum and rows of red dots on sides. (

We came back then to Fred Hasty's place on Hasty Creek for dinner. A small dog was bitten by a snake apparently a copperhead. The fangs struck in the side of the jaw drawing blood and in twenty minutes the whole side of the animals head was much swollen. The dog vomited sick and stood with head lowered, finally lying down

Two hours later it seemed better and went down to the creek for a drink. Apparently it recovered without ill effect.

Jay and I walked up toward the top of the hill and then returned by way of the Parnell place. A fox squirrel was feeding in the wheat. I saw several woodchucks and one ground hog.

Later I returned to the hill and crossed east and north collecting some plants.

Shot two chickcharks.

Returned to town at dark and packed up.

Left via Rock Island (on the Union Pacific) at 11:20 P.M.

Scott Holloway told me today that forty years ago there was less timber on the upland and away from the creeks than now. the country was largely in unbroken prairie and frequent fires swept across it keeping the large growth. timber along the creek bottoms was more extensive however. the draws and the Purcell place were timbered then as now.

At that time Prairie Chickens were very abundant and there was little attempt to hunt them. few of the settlers had guns, save for a few sharps rifles and it was not until the next generation grew up that they became more common. after a few years chickens became less common. Then there was one year when corn failed in the west but when corn did well near here. that fall Prairie Chickens came in to this county by thousands. Scott built a trap and caught half a wagon box

full: ~~what~~ these were sold in town
for ten cents apiece.
Scott had ~~now~~ one Ruffed Grouse
for Passenger Pigeon

May 31, Saturday.

Awoke this morning as the train came into Hutchison. Ate breakfast in Pratt. Western Meadowlark seen here. Near Cullison Kans. Many Dickcissels were seen and several Black-tailed jackrabbits seen out from near the track. Killdeer, Marsh Hawk and Bronzed Grackle were noted near Haviland.

The country here was rolling and was almost entirely under cultivation. Extensive tracts were in wheat and frequently wheat fields extended on either side for miles. Small patches of alfalfa were noted. All the original prairie had been broken up and the resultant change in ecological conditions must be very great. A few scattered cottonwood trees and boxelders and small fruit trees were about houses. Otherwise there was no timber growth.

At Bucklin Kans. [illegible]

Arkansas and Eastern Kingbirds. The former was fairly common here on. A Scissor-tailed Fly catcher flew out near Joy, with the long median rectrices waving in the wind so that the bird suggested in a way a tropic-bird. At Mullen with Mr. Dickinsons and Western ~~Meadowlarks~~ were noted. At Bucklin the Killdeer and two pairs of Arkansas Kingbirds were seen.

Beyond Joy the country became more rolling and the railroad cut through the heads of broad open draws running to the south. These were in pasture. Here their sides were low cut banks eroded by erosion. The uplands were covered entirely by wheat.

Sandy areas with yucca, cactus and other plants of the original prairie vegetation appeared below Minneola, while near Meade the country became more hilly again. The Horned Lark was seen

Near Kismet one Lark Bunting and a Prairie Dog were noted.

The railroad crossed the Cimarron (?) River at Arkalon. This valley was broad and rolling with a sandy streambed containing a small amount of water meandering through it. The land was in pasture and was covered with some grasses and yucca. Cottonwoods grew along the stream.

A prairie dog town containing about 20 occupied holes was seen between Hayne and Liberal. At Liberal a small cottonwood offshoot the station contained several English Sparrow nests. Mourning Doves were common all along and English Sparrows seemed in all towns.

The first Nighthawk appeared at Guymon Okla and below here in considerable number were seen until we had crossed the Canadian River and began to climb up on the Staked

grade. Apparently they had not come into Western Kansas yet in irrigation.

Toward dusk at Lucinda the country became rough and broken with several large Buttes showing.

June 1, Sunday, 1919.

We up and dressed this morning when the train came to El Paso at 6:50. I had opportunity to walk out and see the barren hills of a low mountain range across into old Mexico with the town of Ciudad Juarez with its adobe houses coming up to the eastern side. The Rio Grande here is narrower than at Albuquerque due to water taken out for irrigation.

Beyond Lordsburg the Chiricahua Mountains were in sight, massing impressively from the level of the desert. The Navajo was in sight for a considerable distance.

Beyond I saw the Dragoon

Mountains and above Tucson the Santa Catalinas were notable. I saw no small area of what near Tucson.

West of Tucson were many fine Sahuaro cacti some of which grew near the track so that I had a fine view of them. A number had woodpecker holes visible in them.

Changed cars at Maricopa at 9:10 and left via Arizona Eastern for Phoenix at 9:35 arriving at 10:45. Registered at the Adams Hotel.

June 2, Monday.

Was up this morning at seven. Worked in my room on some correspondence until nine and then visited our office where I met Mr. M. E. Musgrave. He advised me to go to Buckeye west of Phoenix as there was considerable grain there and towns were said to be unbroken.

Musgrave introduced me to

Mr. N. C. Hurd, county agricultural agent. He said that this year there were about 30,000 acres in the Valley in food grains about half of which is planted to wheat and half to barley at a rough estimate. He said that serious complaint was made against the Whitewings but that personally he did not know whether they were of injury or not.

Went out to the capitol and met Joe V. Prochaska and found that he claimed that white winged doves did serious damage which he did not believe that mourning doves did. We talked for nearly an hour.

J. Musgrave Healy that in the Northern part of the state of Arizona around Flagstaff and Williams that there is considerable sentiment in regard to the present season

on ducks under the migratory bird law. This part of the state together with the rest of Arizona is included in the southern zone. The Northeastern portion above the escarpment of the Arizona plateau is high so that the winter season sets in early. Ducks come in in October but shooting does not begin until November. Then winds on so after the season opens the cold drives the birds out. The sportsmen desire to have this section included in the northern zone. This area would include Coconino County and Navajo and Apache counties north of latitude 34°. To include the lower points of these two counties would include a lower area on Black River where ducks winter.

Museum says that a good many ducks nest at Mormon Lake below Flagstaff but that they are much molested. There is a

Ranger station at the lower end of the lake and last summer there were six or 8 ducks nest near by. A good many ducks are said to nest along Black River also.

It is claimed that white winged doves damage Salvia and similar plants more than they do wheat when ripen in July.

June 3. Tuesday.

This morning I left at nine A.M. in an auto stage for Buckeye, arriving at 11.20 a.m. Very hot riding, road dusty in places.

Registered at Longs Hotel.

Met Mr. C. H. Gable, of the Entomological Experiment Station at Tempe and talked with him for a few minutes. He introduced me to several ranchers and offered to loan me a pair of binoculars.

Talked with Mr. Clugston

Who has a place 5 miles west. He says that white-winged Doves are less abundant than last year. Last year many were killed and the birds did considerable damage.

Mr. Wm Walton said that birds were more abundant farther west.

Spent the afternoon in working on notes. I saw only scattered areas of wheat in coming from Phoenix until I reached Litchfield. Grain fields were more plentiful from there on and I saw occasional white-wings. Mourning doves were abundant.

Met Leon Scott out with Mr. Lawton to his ranch at Palo Verde seven miles west of Buckeye. Met Mr. Narramore secretary of the Buckeye Valley Water Company. He had no grain but considered that

The white-wings were injurious.

Mr. Walton obtained that the white-wings did some damage by eating wheat but considered this serious only when fields were late or early in ripening as when the grain lay in the shock for some time. This year considerable grain will be harvested with Combination headers so that the doves will get no chance at it. The total acreage of wheat is about 4 times what it is in normal years because of the high price for this grain. The area above that in alfalfa and stock.

June 4, Wednesday.

Stayed last night with Mr. Walton and was out at daybreak this morning.

Walton has two fields of wheat that have just been cut and are not yet cut. Several other fields have wheat in the shock

or have not yet been cut.

Mourning Doves were scattered all through this area and were feeding in the fields or in the trees, Cottonwoods or occasional mesquites, roosting there. I found several dead on the ground and three in the trees. Doves fed in twos or threes and were active, flying, fighting and flying about.

White-winged Doves begin cooing at daybreak but did not begin fighting until the sun was an hour high or more. There was a flight of birds from the Gila River north into the wheat fields. Scattered birds came first and then small flocks of two or three. Finally the birds came in large bunches. Many perched in a line of Cottonwoods from which they could easily. Others dropped down to feed on the ground. They feed

always collected together in packs and new birds that arrived always decoyed in to those already present. The birds were well concealed in the stubble and as their heads are small they were easily overlooked. One flock of 16 alighted on a fence near me, and then dropped down one by one into the stubble. I crept up within sixty yards and saw them walking about feeding on fallen wheat and scattered seeds. One hopped up onto a shock and saw my head and after an instant all flew up and left. Later I found 20 gathered in one flock feeding on the ground. Half a dozen flew up and alighted on a shock and I saw them picking at the grain. Examination ~~showed~~ in these fields showed occasional bundles where from 10 to 20 heads had had from a few to all the kernels picked out. This damage was scattered and so yet only

nominal. The wheat planted
here shattered badly when ripe
and many stalks are so short so
that the ears are not bound but
fall to the ground. There is very
abundant food for the Texas
Quail and the White wings and
Mourning Doves are taking considerable
of it. If this wheat is threshed
immediately there will be no
serious damage.

Scattered White-wings were
passing over the fields until
ten o'clock after the sun was
at its meridian when they became
quiet. Many birds were found
scattered through the mesquit
areas but no nests were seen.

I walked down through the
fields to the limit of cultivation
along the river and then away
in through the cultivated district
reaching the west four miles
from Buckeye when I walked into

that town. It was intensely hot and I did not get to shelter until 4:00 P. M.

Six white wings alighted in one shrub and I fed for a few minutes. On examination later I found 30 heads of wheat damaged. Most heads had grain by the time surrounding the bunch was attacked first as they were easy to work on. When a Harris Hawk passed all of the White wings flew, even leaving the shelter of the Cottonwoods.

S. L. Burraman was eating wheat behind that white wings do considerable damage did not think that they visited until later. Thought that they remained later last fall than usual. Town hunters who come out for whitewings are liable to injure stock by careless shooting.

W. H. Wedgeworth did not think damage by white wings warranted any change in the hunting season

did not consider the birds as common this year as formerly.

J. B. Wedgeworth considered that they were harmful and should be killed off. He hopes game will might be able to furnish game to sell to you.

F. Nasbom said that whitewings had done no damage this year but believed that they should be exterminated.

F. B. Collins thought that they did harm and should be killed.

W. Clayton considered them injurious.

The country traversed today was flat and sloped toward the Gila River. Very fertile and with abundant water for irrigation. Found the work in the heat very enervating.

Saw several plows today which are said had been collecting what to store. Individuals were seen

carrying pulled kernels ~~or~~ to the nest and drying kernels to the number of a thousand or two were spread in a band forming a maze with four feet across surrounding the entrances to the nest. Occasionally an ant picked up a kernel and carried it inside.

June 5, Thursday

Was out this morning at six and after breakfast walked down to the Gila River cultivation around a short distance below Buckeye and it came at once to some unproductive tracts, near which were growth of mesquite. Lower down much of the mesquite had been cut out leaving only a cattle tree with much greasewood and creosote bush.

Cottontail rabbits were abundant all through here and I saw many young. While I was squeaking up some birds an adult cottontail came loping out and edged closer and closer seemingly unable to resist its curiosity. Finally it was out in the open fifteen feet away and

moved slowly about as I moved not
hurrying into view to get the scent.
At short intervals it twitched quickly
with a sharp thrust of feet and
moving back to its original position
I knobt in the same tracks & remained
motionless again. Apparently this
was done with some thrilling attraction
attending to get at the source of the
mysterious noise.

Scattered Whitewings passed back and
forth along the river and out toward the
cultivated lands in the north. I looked for
nests but found none. Birds were
scattered through the mesquite but
none seemed to breeding as yet. Where
there were cottonwoods many perched in
them were cooing loudly. Others called from
the mesquites. There was little or no food for
the birds here on these flats.

While passing through one brushy area
I witnessed a curious incident in
which a White-rumped Shrike, apparently a
bird of the year, though adult and its mate
and a female Plumbeous Gnatcatcher figured.
The Shrike came in to the top of a mesquite
and the two gnatcatchers appeared almost
immediately in the branches below. The Shrike

rested quietly at first paying little attention to them. The began working around however scolding and huffing about and occasionally making threatening feints toward it but finally it became interested, watched them closely and finally hopped after them attempting to seize them. The goatsuckers eluded the bird easily until it became more excited and flew after them viciously. The smaller birds dropped easily from open perches through thicker tangles and so eluded capture or when too hard pressed went down into the heavy dense brush below. The thicker each time dropped down but was unable to penetrate the tangle. Each time the goatsuckers returned to the attack. After so the shrike rose in pursuit the two goatsuckers flew towards one another and crossed paths leaving the large bird in confusion. Finally the shrike after half an hour gave up in disgust and paid hardly any attention to them. Passing on I encountered

a brood of young Gallatchios, fully grown, a hundred yards away. This gave an explanation of the manoeuvres of the adult birds that I had thought at the time. That they had a nest was probably they were trying to convince the bird that Gallatchios were difficult of capture so that it would pay no attention to the young.

There was a narrow swift running channel here that I took to be the Gila though I may have been mistaken (Buckeye Canal). It was from ten to fifteen feet wide, swift, with dark water, somewhat muddy. The banks were steep with a sandy clayey bed. Wood debris of some kind with willow and brush on either side. The current flowed to the west.

It was extremely hot and I was glad to return to town at noon. Worked all afternoon on notes and correspondence, moving about from place to place in a vain attempt to find a cool spot. With my chief

off I was sunstruck both as the wind blew hot.

A Belgian hare was panting in the shade and seemed grateful when I scratched his head. Young birds in charge of a hen mother were about with wings hanging away from their sides. She clucked at intervals to which they paid no attention. She seemed to know their notes and was much excited when I whistled an imitation of their slightly off key.

Melia azedarach known here as Chinese umbrella tree, a hybrid appellation perhaps between the China berry of the South and the umbrella tree of California is in universal use here for shade: and is well suited for this region. The foliage is dense so that no direct rays penetrate. The shelter is thus far superior to that of cottonwood trees through which the sun rays pass in small beams that burn where they strike.

At six I packed up ready to leave

The stage was late and I had to wait over two hours for fear of missing it.

Single individuals of whitewings live in this together passed from the southeast up towards the cultivated lands. Probably a hundred came this way in an hour at eight o'clock for Arlington by auto stage.

The road led through Park Wash and saw a number of whitewings flying over the wheat lands there. Four miles west the road crossed the dry sandy bed of the Nueces River. No water ran at this point at all. From here on the road climbed a small hill with cultivated areas on one side and a rough rocky hillside on the other. We saw a number of giant cactus and the country in general looked very interesting.

Arlington (reached at nine) consists of a store and three or four dwellings. The place has been improved greatly since Holt's visit in 1917 judging from his description. A [illegible] small hotel where we secured an excellent cornbeef dinner in a verandah with a bath adjacent! Desert hash-hips! The situation is as favorable as that at Paradise Valley Trailer!

I chatted with a man on the stage who claimed that White Wings did serious damage around Tempe. Did not seem very reliable.

June 6, Friday.

Cool and pleasant last night so that I had a good night's sleep. Was up this morning at daybreak. Arlington lies at the edge of the desert with a narrow irrigated tract following the Gila River below it. Small areas covered with mesquite are mingled with the cultivated areas and cottonwoods

grow through the fields.
The Gila Bend Mountains show up clearly to the south.
I walked out this morning before breakfast near the hotel and found a track in the retaining wall of a small dam for impounding irrigation water, thus apparently belonging to a pocket gopher. [illegible]
After breakfast I proceeded west. A large irrigation ditch separates the cultivated area from the desert and the road follows it. I walked out about 3 miles west and south. There were several barley fields here but only one wheat field.
White-winged Doves were very abundant here, and for an hour or more after sunrise birds were calling regularly. As the sun rose higher the volume of sound increased until I could hear them in all directions a considerably volume of sound. Single birds flew back and forth from the mesquites toward the cultivated areas.

I saw a good many droppings into a barley field in which the swath had been cut.

Three miles below I came to an extensive mesquite "monte" half a mile long by a quarter of a mile wide. This was grown with large mesquites with a thick undergrowth of a thorny shrub bearing purple clusters as large as hands (see specimens). Condalia spathulata.

White wings were feeding all through here. I was told that the birds had arrived ten days or two weeks ago. Every few nests that I examined contained two fresh eggs, others were empty. Still others had not yet built. The low cooing of the males came from every side and flushed birds every few feet. The noise of the cooing was not so that the noise made was not oversowings but on the contrary very pleasing. The ground was covered with the droppings of the birds. Apparently they roost close

together as one that I shot had the rump and tail above coated with excrement as is often the case with birds that roost in flocks. This bird was thin in body.

Bright birds passed continually from the roost to the fields to the south.

C. C. Roberts told me that the were very bad. At the Arlington Improvement Co a man is employed at 2.00 per day and his board to shoot the doves from the wheat. One man said that the doves ate less wheat before it was cut.

Worked this afternoon on notes and specimens.

Am badly constipated (for three days) and am afraid to eat much until this condition is remedied.

A party of men who are to begin work on a dam across the Gila a few miles below arrived this noon. As the hotel is planned to accommodate

half a dozen and as 20 arrived things are crowded. It was fortunate in arriving when I did else otherwise I should not have been able to secure accommodations.

June 7, Saturday.

This morning it was dust at six and I was through breakfast at 7:30. It was cool and pleasant last night 20 that a slight dew is spoken of as having fallen during the latter part of the night. Today was hot but not unpleasant as it is blowing steadily from the Southwest.

This morning I walked out 4½ miles southwest to the C. C. Roberts Ranch. There were there extensive fields of wheat here, two of which had been cut, while a binder was at work in the other.

On the Gila River a mile south of this I could hear the sustained cooing of White-wings [illegible] marked

a second breeding colony. A third colony is located due south of the Arlington Postoffice. I remained for two hours watching the wheat fields. The grain had been cut with a binder but had not been shocked as it threshing was going on and it will be taken out in a few days.

There was a steady flight of white wings up from the South, from the breeding colony. Many passed on to the fields to the north while others dropped in on the tract of 150 acres which I had under direct observation. A line of mesquite stretched on the east side of this field and upon it sat here and there small clusters where it was concealed and could overlook the country. Bundles of grain lay where they had fallen from the binder all over the field. During the period of two hours I estimated that from 500-600 white-wings visited this grain

Some stayed for a few minutes only others remained to feed for a considerable period. The grain had been cut only a day or two previous so that there was much waste on the ground. The doves preferred to feed on the ground in the stubble when they had cover so that they took the waste grain first. Once when two hundred birds were down in the grain not one was in sight. Occasionally one or two jumped up on bundles and picked at the grain but seldom remained long. Examination showed only nominal damage as yet on uncovered bundles. While I walked down through the field doves kept rising ahead of me a short intervals. On making the circuit all left but ten minutes later others had come in. I saw at least two thousand white-wings from this point in two hours.

Birds that came up from the

south all had the crops empty so that apparently they had just come from the nest. (This was between mid and dawn). Most of those that I shot were females. One contained an egg forming, others had laid. Which some must have had young as the "pigeon's milk" was forming in their crops.

I found them comparatively easy to shoot; less difficult than Mourning Doves. Those that I shot while in good flesh had no fat at all on the body. Crops of some contained quite a bit of wheat.

I returned at 12:30 to the hotel. This afternoon I arranged a work table in the shade of a big cottonwood and found it cool and pleasant. Made up a few skins and prepared some specimens.

One fellow brought in a dead Gila monster (adult) and gave

it to me. The animal was a female and contained 5 nearly developed eggs. The thick, heavy tail is found to consist largely of fatty tissue disposed in great masses along the rather small caudal vertebrae. This may act as a reservoir of nutriment for the animal. The mouth and oesophagus had the mucus lining stained black.

Worked on notes in the afternoon and evening.

June 8 Sunday.

Cool last night again.

This morning I got up and had breakfast at seven and then went out on the desert area north. There was a heavy growth of mesquite here along a dry wash with much Creosote bush on the flat above. There is a low escarpment 40 feet high marking the limit of the flood plain of the Gila. This bank is steep and is

faced with smoked sized boulders of black lava. Above was a mesa like that four farther north in a low hill. This was grown with creosote bush from which came a pungent odor that at times was almost stifling. ~~Scatt~~ This basin area was gravelly with a hard surface. Giant cactus ~~covered~~ studded it at intervals. These at times grew thick but tall and were straight columns, at times with heavy short limbs. Some were three feet through. The outer surface was thrown up in parallel sharp margined ridges, in which grew heavy thorns. The valleys between were smooth. The ridges were more or less straight and ran perpendicularly to the trunks. These trunks were set so closely with thorns that one touching them with the unprotected arm was able to climb or pluck on them. There

large cacti were now blossoming. The flowers spring from little shoots four or five inches long at the crown of the two old stems. That had fallen and decayed showed a tough woody structure that was divided into heavy ridges and bands.

A smaller cactus eroded away leaving a curious fret or lattice work of woody fiber that looked as though it had been carved by hand.

Birds were abundant here in the mesquits and I collected several that I did not know, among them the gilded Flicker, Plumbeous Gnatcatcher, Texan Nighthawk and Curved billed Thrasher.

Last night and this morning there has been considerable shooting at Wild wings.

This evening I walked out across

the desert at the hotel and set a few mouse traps. Returning at dusk a Barn Owl came beating across the gun flat ~~over~~ when I squeaked it flew directly toward me and I shot it with the gun.

June 9, Monday.

This morning I walked south to the Gila River through an irrigated district. From the hill above the hotel I believed that I had located a wheat field down here but it turned out to be barley. White-winged doves flew back and forth across the field or perched in the tops of dead cottonwoods. I met one of the Peterson boys here and he said that sometimes they did much damage in wheat that was not handled quickly in harvest.

The Gila River here has a bed about 100 to 150 feet across through which run shallow channels of muddy rather saline water. The

banks are found with willows and occasional cottonwoods. Some low flats not in cultivation were grown with heavy grass weeds. In these I found a least Vireo and several Western Yellow throats. Beyond here I crossed a region where the soil was heavily encrusted with alkali.

A growth of sagebrush that had been partly cut away, contained a small colony of White-winged doves. This ground was very bare with little or no vegetation covering the soil beneath the bushes. White wings were passing to and from this and the cultivated fields. I saw where they were feeding in barley but could detect no appreciable damage.

Returned to the hotel at noon and met Mr. C. H. Gabb. About two we left in his motorcycle (with sidecar) and drove south to the Arlington Improvement Company property.

adjoining this on the east was an extensive area of mesquite in which was a very large colony of White wings. A flight was going and coming from this continually. I worked out through the edge of the grove and found numerous nests. Then I found many in a spot that were partly filled. Other nests were partly built. I shot 10 doves at the edge of this areas and found considerable wheat in their crops. On flight these birds are very swift and I shot six or eight times before I got onto their speed.

From here we went down to the main ranch of the Arlington Improvement Company where I met Lars Anderson foreman. He stated that he had employed a man for about two weeks at a total expense of $50 or $60 to keep the White wings from the crop of Barley. Herding the birds had been successful. I examined a portion

of this field and found that the fence had dodged back, in some places. We could see where the cows had worked on the weeds but the damage had been merely nominal.

Mr Anderson considered that the birds were capable of doing much damage. He expects to hunt with a carbine.

We went west to Webbs Well about 5 miles northward. The bed of Woolaroy Creek is a deep wash; Camp was made here under the mesquites that we remained here for the night. The water in the well was fair but from the tank was full of dead kangaroo rats like most desert wells so that in the main we depended upon water brought with us for drinking. About eight we walked up the bed of the wash for some distance. The wash was entirely dry. Palo Verdes and mesquite of fair size grew along the banks while the flats on either

were covered with creosote bush.
Fishhook cacti were common.
About nine we started back. The
moon was nearly full and so I
could keep by the transition from
failing light of dusk to
illumination of the moon was
evident only in the gradual
blackening of the shadows as the
diffused light of evening day was
replaced by direct rays from the
moon. We got to the camp and went
to bed at 9:30.

June 10, Tuesday.

I opened my bed and some soft
sand last night and slept soundly
until day broke this morning. After an
early breakfast we drove on in the
motorcar for about three miles
to a great flat covered with giant
cacti which stretched to the base
of Wooley Peak. Dry Washes extended
through this were lined with
Palo Verdes, and mesquite. Saharas

were common, and grass at intervals of 30 to 300 ft. Ants found them in clumps of 5 or 10. Ants between were clumps of small Cholla. and the entire flat was covered with creosote bush growing from two to five feet high. These shrubs were spaced from 6 to 20 feet apart with open areas between that were entirely bare of vegetation. The whole gave the impression of an orchard so regular were the spaces. The area was very rough and dotted others smooth. Cholla also was common. The bare areas were a scant growth of a grass that grew in little clumps three inches high. This bore a seed that was gathered by ants. I saw one column of ants 100 feet long carrying seeds to a nest. This nest hole was a single opening with an irregular ring of sand grains surrounding.

The number of individuals is increasing from the low point of 1934 and 1935 when I first came here. I must have had a count of 15 of radiating chambers within a mile.

Along the wash I saw a few jackrabbits but they were not common. Had a glimpse of a coyote this morning but did not hear any howling last night.

The White-winged dove was common through here but not so abundant as back in the Valley. The birds were gathered to roost in Palo Verde and Mesquite along the wash last night. Apparently they range far to find [illegible] that it had had its crop filled with what but of these birds I may not have been breeding as at times I found them roosting in my box. During the day the birds perched often on the tops summits of the giant cacti. One pair had a nest containing eggs in a mesquite at camp. This morning there was a small flight of these

toward the south perhaps to the Monterey Peak. Mr. Nelson asked me before leaving Washington to try to secure photographs of these doves at water holes in the desert but from present appearances this will hardly be possible. Certainly comparatively few were gathered here. The great bulk of the birds are found along the Gila River where they water at Grandon.

Three Cormorants passed this morning travelling together ~~so~~ and occasional small parties of Wilson Phalaropes passed a little west of south. There is no water here for some distance.

A Cicada was common in the Creosote bush and Palo Verde in our locality. Collected three. Two antelope squirrels scurried across the trail.

At noon we returned to camp. Gila Woodpeckers were common through the Giant Cactus and a few Scott's Orioles. Crissal and Palmer's Thrashers, Verdins, Plumbeous Gnatcatcher, and

Cash. Thrasher 3 Cactetes were common. Bird life was scarce in spite of the added conditions.

We returned in the afternoon reaching Arlington at 4:00 P.M. I spent the afternoon and evening in caring for the specimens that I had secured.

June 11, Wednesday

Had breakfast at 6:30 this morning. Worked for an hour on some notes and correspondence and then left on the stage for Palo Verde. There I travelled through the wheat fields visited last week examining them for evidence of damage by White winged Doves. What few I found entirely in small tracts. I examined a number of fields but met with the following result: Where damage is stated to be nominal I found occasional cap shears when from 10 to 30 heads had a few kernels taken.

20 acres wheat (shocked) damage nominal
10 " " " " "
40 " " " " none
15 " " " " "
10 " " " " "
10 " " " " "
30 " " (on ground) " nominal
5 " " (shocked) " none.

Two fields belonging to Wm Walton had been threshed. The yield from 35 acres was 435 sacks. Threshing is going on now and this entire area will be cleared up in a week or so, before Rains have an opportunity to injure it. The birds are feeding in the fields but have an abundance of waste grain remaining. Damage can result only when fields lie for a long time without attention.

Caught the stage at 12:30 and returned once more to Arlington.

Worked all afternoon on notes. Very hot but with a high wind.

June 12, Thursday.

Was in the country this morning before seven. I walked in out south and

west to some wheat fields where White-wings have been stated to have fed in standing grain. This grain was very poor in places and the stalks were low. I examined carefully but could find no damage evident. Part of this was being cut.

White-winged Doves began to fly to some extent an hour after sunrise but did not leave the breeding colonies in any numbers until two hours after the sun was well up. After watching near the fields for a time I went on down to the mesquite grove below the school house and spent the rest of the forenoon in observation here. For notes on doves see account under Phoenix. Returned to Arlington at noon.

Thus far while the sun has been very hot I have become accustomed to it so that it does not affect me. There is nearly always a breeze that tempers the extreme heat and the dryness of the atmosphere checks my

tendency toward excessive precipitation.

The irrigated lands along the rivers are cut up into comparatively small tracts and ranch houses are numerous. Many cattle are pastured and ranchers complain of damages done to cattle by town sportsmen who come out to shoot white wings.

This evening I went out and collected a few insects among the mesquites back of the hotel. Also I sat on a stump and watched the ducks going to moonlight.

This evening we found a band of burros encamped. Three or four Germans had burros and proceeded to have them up and eat them. This being a new product may be tried here but I doubt its food value.

June 18, Friday.

This morning I was out at six and had opportunity to ride out south in an auto. I reached the large colony of whitewings after

The Arlington Improvement Company's holdings left 7:15 and remained there until noon.

I traversed a good deal of the colony and spent much time in collecting the birds. Wearing waterproof irrigation rubber shoes there in the marshy so that with them and the pile fisher legged I have knee water available close at hand. Working through the mosquito is rather irritating as it is necessary in walking in most places to bend double and at times almost to crawl. The thorny branches catch ones clothing, spikes rake fingers face and travel is difficult in general.

I secured a number of photographs of nests and eggs and hope that they may turn out well.

Worked for a time on [illegible] and this went out east for three hours for nests, extremely hot. Closed

collecting in the thorny growth is difficult and swift flying things are hard to secure.

A beautiful full moon this evening.

July 16, Saturday.

Was up this morning at 5:45 ate a hasty lunch and started south in auto at six. By this means I reached the colony of White-winged Doves opposite the Old Dutch Improvement Company at 6:30 and remained there until 11:30 when I secured a ride to Arlington.

The white wings were calling in chorus at the time of my arrival.

I went on through the colony to the Gila River (this is in the Gila Bend) the first White wings made early trips to waters but did not pass in great numbers.

The Gila here is about 300 - 400 feet wide and has the bed partly in mesquite and partly sand. Across this is a shallow channel meander with many mud bars in its course.

I am satisfied now that what I took for the River at Bend is merely a ~~[illegible]~~ ½ to 1 mile wide with a ~~[illegible]~~ 10 or 12 feet high. Large areas of the bottom are thrown with a ~~[illegible]~~ ~~[illegible]~~ this are the growth of low willows & grass willows grow along the sloughs.

After crossing this creek I returned to the white wing cut.

Birds collected in early morning from the crops empty. Left there after 10:00 a.m. Today all had the crop partly full and in every one the birds caught white. Young birds 3 or 4 days old had not fed but went and found what the young birds that were able to fly but that were still under the care of the adult.

Collected a few insects at night. Beating for mosquito is not very productive a good many specimens come to the [illegible] 2 specimens.

Worked all afternoon [illegible]

and notes. Made 5 miles of 5 whites.
Very hot today. The nights remain
cool and sharp.

June 15, Sunday.

This morning I was out at
six and rode out to the site
of the Woolsey 11 or 12 miles south.
Eat breakfast here and then went
in out through the country.
At this point the foothills of
Woolsey. Beat reach the river. Here
is a narrow pass where the
river runs between two hills and
then the flood plain broadens again.
This coal area was ground with
mosquitos and is chert gravel.
At the west rises a steep
escarpment 60 to 100 ft high.
I rested back through a narrow
canon. Here until it gradually
took and became a wash
in the long slopes. Above. The
sides were precipitous in places and were
strewn with smooth irregularly

shaped blocks of lava rock that
covers that area is so thick
they had been burned to the black
of the sun. Above in some places
were outcrops of granite. Mesquites
and Palo Verdes grew along the
wash. Above on the higher
ground were Saguaro and Cholla
Cacti and on the hills the low
thorned Acatilla. Creosote bush
grew everywhere.

I followed up the canyon
walked across to a small hill
and then returned to camp by
another wash. Jackrabbits and
Cottontails were common and I
saw a few Antelope Squirrels.

Canyon Wrens occurred among the
rocks and I found a number
of burrowing owls. I observed a
Turkey Vulture (or Buzzard) sitting on
some rocks (on nests) containing young
one third grown.

At noon I returned to Arlington. Cared for specimens this afternoon and did some writing. It has turned much warmer. The wind is very hot now.

Cool and pleasant in the evening. What harvest is now about over.

June 16, Monday.

This morning I walked out across the desert to the Malpais South north of Arlington. This is a lava outcrop rising sixty or eighty feet.

The flowers of the Saguaro are white and the fruit red. The fruit have usually been pulled open apparently by woodpeckers. The framework of this giant cactus is made up of slender rods one to three inches in diameter sometimes more that are joined together at intervals anastomozing irregularly. Outside there is the bark covered with spines and within a pulpy or

pithy interior. The rods have a coarse fibre something like that of a palm.

The rock colony. The escapement east of Wellington is named "Whiting" and hieroglyphics.

This evening I put out a light and secured an air bed & mosquito. Collected three moth about work.

June 17, Tuesday.

Was out this morning at six and rode 3½ miles south to the first colony of White wings. A few birds were still commencing to nest. Young able to fly are more common.

The last wheat field in this region a tract of about 60 acres is now being cut. As a thresher is working in the neighborhood it will be handled immediately. Only a few white wings were working in the field as yet. Have decided to move on as there is nothing to be gained by remaining here longer.

returned to town at eleven and proceeded to pack up specimens on hand.

It is very warm today but still I do not find the heat oppressive.

The morning is the best time to observe birds in this region. With the exception of crepuscular species (as the Nighthawks) birds are quiet in the evening and show almost complete stillness. This will account for the few birds that I noted during an evening spent in Needles, Calif. last July. Like other animals the birds may feel lassitude due to heat.

Yesterday I was sitting [illegible] when a jackrabbit came hopping toward me. As soon as the animal saw the shade of a mesquite in the little opening it stopped and remained quiet, sitting bunched up with ears erect. For fifteen minutes the animal remained motionless seeming almost

asleep. At the end of that period of [illegible] it began to squeak and [illegible] it moved it's way forward but [illegible] fragment of [illegible] finally at noon I [illegible] and slightly and [illegible] [illegible] started out and [illegible].

[illegible] I thought he [illegible] at last we [illegible] them up the [illegible] [illegible] [illegible]

that had not yet been cut. All had the border swaths cut however in preparation for cutting with a combine. The wheat observed at this time had all been harvested. I was informed by Cashion we returned in part by a low road that bordered the alkaline tract along the river. There were a few fields of barley here but not many.

White winged doves were scattered along through here and I saw a number out resting in the sun in fair young orchards were noted also. The birds apparently were breeding here.

Arrived in Phoenix at 11:30 Registered at the Dixie Hotel. Cleaned up and then called on Mr. H. C. Heard and met Mr. Peters & another gentleman. They said that complaints of depredations by birds in fruit was coming from Safford & adjoining areas.

Went to the Survey office and

found that they had moved to 113 N. and Ave. Worked on Corrugating and corrected galley proof for Bulletin 713. Began report on White-winged Doves and worked on it until 7 P.M. Wired office regarding further work tonight.

June 19, Thursday.

Temperature yesterday went up to about 108°+F but it was reasonably cool last night.

I was up this morning at 6:00 and left at 7:15 in an auto. Drove south of Phoenix and then turned east to Tempe. South and east from here and then north to Chandler. Then east to near Higley, north to Gilbert and return via Mesa & Tempe to Phoenix arriving at 4:15 Distance travelled 65 miles. We had much tire trouble today

and changed this in the near
Wheels seven times in all. etc
Dinner in Chandler.

Complaint has been made of
damage by White wings in this
region but it seems entirely unfounded.
I saw 5 White winged Doves during
the day all within 8 miles of
Phoenix. The entire area traversed
was planted almost entirely in
cotton and alfalfa. Occasional
small fields of barley were seen
but they were widely separated
and not more than 5 small
fields of what were observed.
Barley was about half threshed
One was still in the shock
and some uncut. There was so
little grain this entire region that
I had difficulty in finding any
one to talk to about White wings

Mr. Rabbeth near Chandler gave some
information that seemed reliable. He
stated that White-wings did not

west than commonly but came in during July and remained until August. None had been observed about Last year they had damaged a field of Sudan near J. Gray near Chandler said that a few wings appeared in a small tract of wheat that remained about ten days ago but that they had been about for three days and then left. Last year a flight came into a field of wheat covering 100 acres near him but after 10 days shooting the birds all left.

The country traversed during the day was level in the main and practically all under irrigation. Here & there were two-story houses rising from the center of the valley. Occasionally a single Sahuaro had been left standing and now grew alone in the

market of a field of cotton or alfalfa, a strange sight.

Worked in the office from 5 until seven.

June 20, Friday.

This morning I drove out again in the country southwest of Phoenix to Laveen and examined the territory between the Gila and the salt rivers. The whole region was practically in alfalfa with considerable areas of cotton. Small tracts of an acre or part of an acre of sorghum grains were noted. There was very little barley here and less wheat. Stopped at intervals nearly grain fields and ~~stopped~~ examined and listened for whitewings but did not find them. One was seen at the border of the Indian reservation and I was told that a few

occurred. About 2 small patches of wheat down in the vicinity. Returned to Phoenix at 11:30.

Spent the afternoon in working on report at the office. Work until 6:30.

After supper I walked out to the library grounds and spent the evening there. Extremely hot.

June 21, Saturday.

Worked on correspondence and reports all day today. Called on Mr. Hardy county agricultural agent and on Brochaska State game warden. Work until after six. Completed report on white wings and mailed it in.

Saw two Bronzed Cowbirds in the Capitol grounds today.

This evening I walked around through the grounds in hopes of seeing them again but did not succeed.

June 22, Sunday.

This morning I was called at 5:00 and left via the Arizona Eastern at 5:50 A.M. for Tucson. The nights here are cool in spite of the hot days. It was much more pleasant and bearable however in Arlington than here. Arrived at Maricopa at 7:00 and left via the S.P. at 7:25. Arrived in Tucson at 10:20 A.M. Registered at the Santa Rita Hotel.

It is very hot today as usual.

This afternoon I worked on some notes on White winged Doves and then in the evening walked out over town. Tucson seems a very pleasant place and I like it much better than Phoenix.

Rain threatened in evening but only a few drops fell.

June 23. Monday.

This morning at 7:30 I went out to the University of Arizona. The campus is very well arranged and the buildings which are numerous. The grounds are planted in various shrubs and trees and there is a good exhibit of cacti.

I found that E. V. Taylor of the extension service was not in but that he is expected Tomorrow. Dr. C. Vorhies also is away on his vacation. I talked for some time with Prof. J. J. Thornber who gave me considerable information. He stated that only small areas were in fruit here but that the bulk of the fruit was grown around Phoenix. Last year there was much complaint and in a few apricot farms near Tucson and in one place many birds were killed.

He stated that ten or twelve years ago White-wings and Mourning Doves

had fairly increased about 3 times but that in the past few years they had decreased markedly. formerly many were killed near what [illegible] fields on the Papago Indian Reservation below here but now few are seen.

While at the University I examined the Herbert Brown Collection of bird skins and found it in good condition. Many of the skins were lined out in open glass top exhibition cases where they are exposed to light and a few are kept in storage cases. All were heavily treated with naphthalene so that it was dangerous to handle them. I noticed a number of misidentifications so that the collection should be gone over. Thus Colymbus n. californicus in immature plumage was called C. brachypterus dominicus, some of the Flycatchers were wrongly determined, Sterna caspia from Yuma was called

2. marking etc.

Returned town after spending a few minutes in the University Library looking up some references.

Visited the City Library this afternoon and then worked on my monthly expense account and on notes.

June 24, Tuesday.

This morning I went down at 6:30 and spent an hour and a half in watching Brimley Cowbirds again in the El Paso Southwestern Park. Set some mouse traps baited with rasp-off but failed to catch any.

At nine I went out to the Home and talked with Mr. C. P. Taylor again. He said that reports of foot came from the vicinity of Safford so I shall go there.

He gave me letters to the County Agricultural agents of Pima, Cochise and Graham Counties.

Mr. Taylor stated that Mr. Hill-billed Parrot had been stated to be in fields 4 miles north and other claims. No certain information regarding this was available however. He added in his Weekly Press Letter of June 28, 1918.

Following this I spent a short time in examining the Brown Skin collection again and then returned to town.

Called on C. U. Pickrell County Agent and talked with him regarding Whitewings. He knows of the damage by the birds but is much too busy to take me out to see. Will go this afternoon.

Talked with Mr. County Agricultural agent for Yuma County. He stated that he had had no report of serious damage by White-winged Doves in Yuma County but that he had

heard of their working in Sorghum grains last year.

Mr. Pickrell said that White-winged Doves had been shot in numbers in Arizona always. He said that the fourth of July was the universal day for hunting them. He considered that they had decreased in numbers to a considerable extent.

This coincides with what Prof. Thornber told me. Prof. Thornber stated that twelve or fourteen years ago that the birds gathered to roost at night during August in a field of grain near the Spring in the Santa Catalina. The birds came until several thousand were present. This flocking to roost seems common after the breeding season as I have heard of this gathering in fruit orchards for this purpose also.

Mr. Pickrell took me [illegible]

to the ranch belonging to J. Stevens on the Rillito. This is a small stream passing along the south base of the Santa Catalina Mountains. There was about 100 acres in wheat here in the shock. Am or two mourning doves were seen but no white wings. There was no report of white winged doves in the entire neighborhood so that we did not visit two of the tracts located within a mile or so.

From here we went to the Tanque Verde about 16 miles south of Tucson on the road to Nogales. We visited a small tract on the Tucson Farms ranch first. Wheat had been cut and threshed. There was much waste grain here and Indian women were engaged in threshing it by hand, squatting on the ground and beating the heads on a piece of canvas with a curved stick. The grain was taken up a handful at a time, the chaff blown out and

the wheat deposited in a bag. One dead White-wing but no live ones seen. Many Mourning Doves were feeding in this field.

From here we visited the Roberts Ranch where grain had been cut and in part stacked. Some had been shocked bound about 150 Whitewings and 100 Mourning Doves were feeding in here, but were working in the stubble and were not injuring the grain. A thresher was set up and this grain will all be handled in a week so that no damage will result.

This area lies toward the base of the Santa Rita mountains. At the Sahuarita the country was slightly rolling with some mesquite and much Creosote bush. Birds were scarce but probably because of the heat of the day. Shade was in consideration. From under our railroad

Cordont & flushed a jack rabbit, two Crissal Thrashers and a Desert Sparrow. Returned to Tucson at six.

After supper I walked out to the foothills of the Tucson Mountains west of town & where I had a fine view of the Santa Catalina Mountains. Palo Verde and Ocatilla are putting out a few leaves now.

June 25, Wednesday.

This morning I worked on notes until 10:00.

Left at 11:00 via the Southern Pacific for Bowie, Arizona. En route I met Mr. Edmonston, an entomologist under Dr. Hopkins who has been working at a field station in Sabino canyon with Mr. Hoyer and told me that if I went up there that I could probably secure accommodations there for two or three days.

He stated that White-winged Doves are abundant there and that they are breeding. The birds are present

in very large numbers and remain until in September about this time however they leave in migration. He raised the question as to whether or not these Doves raise two broods. He stated that he had observed one nest in a certain mesquite containing squabs and that later on returning found the young gone but two eggs in the nest.

Arrived at Bowie, a small place at 3:45 P.M.

This town is near the foothills of the Dos Cabezas Mountains, a small range, part of the Chiricahuas. A small valley ten miles south looked rather interesting.

Left Bowie via A. & E. at 5:00 and after a very hot dusty ride arrived in Safford at 6:00. Safford is a very pleasant appearing place with good lawns and many shade trees. It is located near the

Gila River at an altitude of between 2900 and 3000 feet. I registered at the Oliver Hotel and in the evening walked out over town. Mount Graham in the west is the most prominent physical feature its huge bulk towering up in the west and looking most attractive. There is some fruit grown in town.

Attempted to call A. R. Ballantyne, county agent at Thatcher but was unsuccessful in reaching him.

It is hot here but much pleasanter than in Tucson.

Birds are abundant in town.

June 26, Thursday.

Got in touch with Mr. Ballantyne this morning and he met me at the hotel in Safford at 10:30. We drove then to Thatcher where I met President J. Nash of the Academy, K. Markham Crop pest Inspector and Taylor all of them interested in the promotion of agriculture here.

these gentlemen informed me that quite considerable fruit was grown here that there were no extensive orchards. Most of it was in the form of one dozen two trees about dooryards, that were for home consumption and produced a small amount for sale. Wormed damage by birds is general in this but there is none that is serious. Following this I examined some early plums and peaches belonging to Mr. Mack. House finches were working on these to some extent, mainly on the peaches. One on the about 12 dozen peaches had been pecked into. One apparently had been pecked by a woodpecker or some similar sharp-billed bird. The House finches usually began at the top of the peach and ate out quantities of the pulp. One adult male that I killed had peach pulp adhering to the side of the bill. I was told by these gentlemen that the damage seen here was the average throughout the country. I today travelled about 50 miles and saw no fruit save around houses.

Mr. Ballantyne and I returned to Stafford

for dinner and then drove on to the Mesa camp at the base of Mt. Graham. I had 45 minutes time here and climbed a mile or more up the canyon. Found the least Vireo common.

From here we drove thro' to Pima. I spent two hours on the Gila River while Mr. Ballantyne went on. The River is sandier than at Arlington and has a little more water in it. The flood plain was broad and was grown with willows and cottonwoods. I found a few Cardinals in here. Chats were common and many Least Vireos were seen.

Returned to Safford at eight and I worked until eleven on notes & specimens.

June 27. Friday.

This morning I was out at 6:30 and worked on notes until nine when Mr. Ballantyne came for me

We drove again to the flume camp on Ash Creek reaching there at ten. I started at once and walked up the trail to Oak Flat, a distance of seven miles and a climb of about 3800 feet. There is a saw mill located at the summit of Mount Graham and rough lumber cut there is sent down a flume to a second mill below where part of the timber is resawed. The flume comes down Ash Creek and has a rapid flow. Ash Creek water supplying the flume has an abundance of good water, that was sweet and palatable and pleasantly cool. I was glad indeed of this supply as though it took my time in going up I perspired very profusely and when I reached Oak Flat was badly in need of water.

For the first 1500 feet the

slope was gradual. The canyon was filled with mesquites with occasional Cotton Wood. Leaved Cottonwoods that were soon replaced by Oaks and Sycamores. Beyond here the Trail led around a brown cliffs to avoid a steep granite exposure and from here on the trail was very steep. After rising another thousand feet the trail dropped back into the canyon where Ash, Sycamores and Oaks furnished fine shade. Oaks had been severely attacked by a caterpillar (?) that had eaten the leaves leaving only the veins, often turning entire trees. Above here water ran in the trail bed as well as in the flumes. Douglas Spruce (probably an arizonian species) appeared in small numbers and higher up I saw some Yellow Pine.

Cupressus Arizonica seen in

small quantity. Rubus sorthianus
was common and produced
quantities of dry oddly berries.
A Rhamnus resembling Rhus glabra
was common.

After another steep pitch that in
the heat was hard going I came
to Oak Flat. There was a small
clearing here of 15 acres that has been
used for raising potatoes. Three old
cabins stood here and two or
three apricot trees grew near.
The slope was gradual for away
and there was much pine
and spruce timber. Beyond was
another steep pitch leading to
the higher levels of the mountain.

I sat smoked at Oak Flat and
leaned against the boulder
for 15 minutes enjoying the cool
shade air, a relief from the heat of
the climb. At Oak Flat I collected
a number of insects but did not

find them present in abundance. This would make a pleasant camp for a week or so.

Bird life was common but owing to the time of day and the season birds were few. I shot an Audubons Virginias Warbler and saw an Allens Hummingbird. Below I took the Bridled titmouse and the Arizona Woodpecker, these being the first that I had ever seen.

At 4 oclock I started back and travelled slowly for the first two miles watching for birds and flowers. Cardinal flowers was in blossom and it was a beautiful yellow columbine with exceptionally large flowers. I reached the Sims camp at 7:30 and then went on into town.

Worked until eleven in caring for specimens. A hard days work but the most pleasant one.

At the mouth of this Canyon we are up 4500 ft an elevation of 4500 feet was a peculiar

Callisaurus draconoides

pale colored lizard. This animal was whitish about the head and white underneath; back gray with broken dusky spots. Tail with 6 or 8 black rings and a black spot on underside centering to rings. Sides with a patch of color that is orange anteriorly and laterally. On the abdomen below this is a broad band of greenish blue with two black bars. This lizard ran rapidly up to bushes, the tail curved up and waving it so that the black and white showed prominently. [illegible]

Cnemidophorus with dusky spots, scales and underside of tail. Tail about twice as long as the rest of body. This one was caught by the tail and easily broke off as I pulled it. Soon it [illegible] hind legs [illegible].

Uta ornata [illegible]

June 28 Saturday -

This morning I worked on my notes and specimens and then went out south of Safford with Mr. Ballantyne. This region has various irrigating waters from Artesian Wells. Tracts under irrigation are scattered widely through desert land and there is considerable alkali in the soil. The unbroken flats were covered with Creosote bush and occasional areas of mesquite. The country was considerably broken by washes and gullies.

E. D. Richardson of Algodones said that recently he had detected Jumbo Snail with a glass and had seen them eating leaves of peas, beets and cabbage and attacking young melons. His observation is without doubt reliable. There has been some complaint here against Snail for this work in gardens.

At B. F. Sparks ranch there was half a dozen apricot trees and 3

fig trees. Some of the apricot trees had attacked scale. Oyster shells were common here. I saw Howlett and Bullock's Orchard facing on Apricot also. The birds had attacked the first crop of figs also. Mr. Sparks did not attach any great importance to these depredations however.

Below him in Artesia I examined two acres of fruit on Mrs. Evans Ranch. This consisted of Peach, Apricots, Apple and plum trees. Much of the fruit was inferior in quality and was not marketable. The spraying had been done and trees were dying for lack of water. Honey birds had attacked some peaches and apricots and occasional plums. I saw a Palmer's thrasher eating an apricot. Damages were estimated to 20%

On the orchard of the same size was not producing because of lack of water.

Mr. Ballantyne did not consider any control measures warranted here as

the crops were of little value and not much interest was taken in them.

We returned to town at 11 o'clock about & stayed out.

I worked in notes and prepared some specimens for shipment.

June 29, Sunday.

Wrote a report on work at Safford and mailed it in together with observations on the habits of the White winged Dove.

Left Safford via the Arizona Eastern Ry at 11:15 a.m. and reached Bowie at 12:40 P.M. left Bowie via the Southern Pacific at 1:00 and arrived in Willcox at 1:35 P.M.

Brought my express account to date and worked in notes

This evening a storm came up and it rained a little. accompanying this was a peculiar whirlwind in which a narrow cylinder of sand and dust was drawn up for ten hundred or four hundred feet when it bent nearly

at right angles proceeded for another 100 ft and then passed on at an angle of 45° to be dissipated at an altitude of nearly nine hundred feet.

Made arrangement this evening for an auto to take me to Pinery canyon in the Chiricahuas.

Half of the building in which the hotel is located is given over to hotel purposes. On the other half is a pool hall on the ground floor and a Baptist church above it. This evening church services and pool games were going in full swing.

June 30, Monday.

Left Wilcox in a ford car this morning at 7:15. It was cool and pleasant with the air invigorating after the light rain of yesterday. We travelled across an open flat toward Dos Cabezas; on this there was little of the usual desert vegetation but some grass appeared. This area had the character and appearance of the open areas of the great plains. A few prairie dogs and horned larks were fairly common.

Entering the foothills of the Dos Cabezas we saw mesquite and some creosote bush

again. Yuccas were common.

Dos Cabezas is a small settlement in a little Valley below the peak that with the split rock holed at its summit gives the town its name.

From this foothill country I traversed again an open plain with grasses growing scantily. On about ten miles we struck the foothills of the Chiricahuas proper. Mosquitos were common here and we passed several ranches. Birds were abundant.

Travelling up Pinery Canyon I came to F. H. Hands Ranch and stopped for a few minutes. Mr. Hands accompanied me to the camp of J. E. Law who with his wife and Dr. and Mrs. Holmes Stone were camped two and one half miles above at 6800 feet.

Reached here at eleven.

In the afternoon Law and I walked up the canyon for about a mile and I collected an Arizona jay and two Olivaceous Flycatchers, the first

a hard run.

The Canyon here slopes gently with hills rising in rocky ledges on either side. The coarse barked juniper walnut and sycamores birch many oaks form the dominant ~~crystal~~ woody vegetation. Chihuahua pines come in here also. It was remarkably cool and pleasant.

Last night I was caught in a downpour of rain but stood against a leaning cedar and so did not get very wet.

In the evening we watched for Whippoorwills which were calling from the canyons. I tried to stalk one or two but without success. I heard tonight a small owl giving a peculiar note like coo hoo-coo coo-coo coo repeated constantly.

I spread my bed under the edge of the automobile cover.

July 1, Tuesday,

Our world this morning so far as the United States is concerned! Prohibition is now a settled fact!

A Whippoorwill woke me before daybreak

this morning calling from a tree near by. Rough wrentits began calling while it was still dark and following them came a chorus of Crows, Ravens, Robins and Plumbeous Vireos with Mountain Towhees and Band tailed Pigeons on the slopes above.

I made up a few bird skins and then we left in the car and went up the North Fork of Piney Canyon. Ascending to about 3000 ft. A few chickadees Pines came in here and junipers were abundant. Sycamores grew along the floor of the canyon and oaks were common.

I had opportunity to talk to Mr. J. N. Hunds today and secured some valuable data on Agrotis. Mr. Hunds has lived in these mountains for 31 years. He showed me a beautiful skin of a male jaguar taken in the rocks above this canyon on Jan. 12. 1912.

After doing a little collecting I went back to camp and secured some good insects in addition.

Made up a small series of skins and wrote my notes until dark.

This evening visitors came to night for a few minutes and then ended by ceased with the beginning of a light shower.

We had supper & candle light and went to bed shortly after.

July 2, Wednesday.

This morning I left at nine and crossed by way of Mount Ada. and Barfoot Park to Paradise on the opposite side of the range. Mr & Mrs. Haw accompanied me as far as Barfoot Park. It was cool and pleasant during the day and a heavy rain storm passed to the south. From the trail it had a fine view of this storm crossing through a wild section of the mountains a beautiful sight. The trail was steep but not over 20. Camp in Pine Canyon lies at 6500 feet and I crossed the range at about 8000 ft. Immediately above camp silver-leafed oak came in and on the slopes below Ribes manzanita and Madrona in small amount. The higher slopes had fine growths of the beautiful Shimatang Pine, a fine with 5 rayed needles. Some yellow Pine a fir and a small amount of White Pine were seen

Barfoot Park was a small opening at the foot of Barfoot Peak. Bugled Hd passed below in small clumps of asses. On the opposite side of the Park rises another fine growth of Chihuahua Pines. Below here the trail, now an old wagon road led down across a steep slope that had been largely logged off but was grown with oak. Below was a canyon with a narrow pale green line of sycamores marking the curving line of the stream bed, in contrast to the dull ogreens of the oaks on either side.

I spent some time in collecting insects on top and also secured some fine birds. Was much pleased to take a fine immature Bazilinna hemotis in Barfoot Park and also shot my first Cones Flycatcher. Many Broad-tailed Hummers were feeding about Penstemons in the meadow.

I spent an hour writing notes on the summit and then started down

The road was rough and crooked and I travelled rapidly in order to reach Paradise. From experience I may say that the road to Paradise rough and rocky but that contrary to some statements

it is not straight and narrow but on the contrary has many turnings.

I came down off the top pitches in about one hour and a half and in half an hour more was in Paradise. This town [illegible] of eighteen years ago was a prosperous mining camp with the accompanying saloons and dance halls. The boom had passed however and now a dozen tumbledown frame shacks were all that remained. Some of the houses were closed and at a number of places I saw where old foundations marked former sites of others.

I made up a fire including my hammer, with a wealth eye on it for approaching rain. After supper at the hotel I called on D.C. Duffner and spent the evening there talking about parrots. I bought two very good skins at two dollars each. These were said to have been taken in Pinery Canyon Jan 20, 1918. The sex of these birds was not known.

Duffner was collecting moths commercially and had two gasoline lights that he set going. I remained until ten o'clock [illegible]

up a few bottles as he did not care for them.

At the hotel I found considerable talk going on but turned in early

July 3, Thursday

This morning I was out at six after a restless night. The walls of my room were thin and I had a tubercular patient on one side who coughed all night and a cat on the other who moaned. The addition I was worried lest packrats should get into my hunting sack and destroy some specimens. All night I had been forced to hang this bag on the wall for lack of a better place and occasional rustlings of paper in it alarmed me. Finally after getting up two or three times to see if it was safe I laid it on the bed and whenever I heard a suspicious rustle struck it with my hand. In the morning I discovered that the rustling had been made by a large cockroach that I had put in a cyanide bottle until supposedly it was dead and had then removed and wrapped in paper. It had recovered from the fumes and its struggles had led to my precautions against the rats.

I made up a few more skins this morning, bought some hobnails at the store and then left on the return trip over the mountain. For some distance I followed up the creek and watching in the sycamores for sulphur bellied flycatchers, but was not successful.

Killed a white throated swift on the way up but otherwise the trip was uneventful. I crowded the walking hard as I had travelled and in starting early to climb breakfast and was up around the pines by eleven. The trail was exposed to the sun and I perspired very freely and was in need of water when I reached the summit. Here I collected some Cones Flycatchers.

A large spring in Barfoot Park was so cold that I was afraid to drink much of it at a time. This spring fed a marsh of lush plants and I collected many insects here. A rain came up and I took refuge at the rangers cabin. The rain passed mostly to the south and the shower was over. I worked for a time on nests and then collected for summers. Mule Deer tracks were abundant and I saw one Bear but was unable to secure it

About 3:30 I started down and collected a few more birds on the way. At Six I reached camp.

July 4, Friday.

This day I had many specimens to care for.

Was up at six, took a bath and did my washing in the stream below camp. Packed insects, made a few skins and did some work on notes. In the afternoon I completed my expense account for June.

Collected a few insects but did not go far as I wished to get cleaned up.

In the evening I work down with Mr. & Mrs. J. Hanks & wife who had come up to spend the day and hot-nailed my shoes. The walk back in the moonlight was interesting as I heard Hummingbird Screech Owls calling and saw one Whippoorwill. A bat was attracted by my squeaking and circled all about my head.

July 5, Saturday.

Law and I had intended to go on trip again today but have said not feel equal to the trip. As it looked threatening I decided not to go myself but sent out instead with one of the side canyons radiating from Pinery Canyon. Here I devoted my time to collecting insects and a few seeds. Also secured several birds.

We located a Thamnolaia & much owl and Law was fortunate enough to kill it.

The slope up which we climbed was covered with oaks with occasional trees of the Chihuahua pine. Near the summit of the ridge we found a growth of Pinyons with a few Cypress. Rock formations of the Carboniferous were of interest.

On the 6th inst. I cared for the specimens on hand and did some writing. Was interested in making some anatomical observations on the Thamnolaia & much of Mr. Stone who had gone on trip returned with many plants and a few birds.

A heavy rain came on in the evening and it was busy detaching my camp to prevent having it soaked and

July 6, Sunday.

This day I managed to collect a few insects but did not get much done in the way of study.

We shoved cabin to a small cabin belonging to John Hands today, and got things settled there. In the evening I packed up my outfit and prepared packages of specimens to be sent out by mail.

At dusk Lard and I went out with our guns and I killed a small Myotis a larger bat apparently Eptesicus was seen also. I heard both Whip-poor-wills and Poorwills calling at the same time, rather an unusual combination.

Several birds occur here that do not range higher up in Pinery Canyon. Among these are Gambel's Quail and the Canyon towhee. This is practically the lower limit of Pines. The vegetation about the cabin is of oak and Junipers.

This evening there was a severe electrical storm and much rain up the canyon. Hamilton & I have been sleeping under a shelter made by the cover of the automobile but tonight slept on the floor of the cabin.

July 7, Monday.

This morning I was out at 6:30 and worked for a time on notes. Had some specimens to attend to, including a bat also.

The Rock squirrel (Citellus grammurus texanus) is common in the Canyon here. This morning I saw two fine Apache squirrels (S. tridecemlineatus apache) on an open field which going for water. The animals resemble the Rock squirrels but are very slim. These two ran gracefully with their long tails floating gracefully and very erect. The general appearance then recalls the Fox squirrel of the East but appears different about the head and have a relatively longer tail. Mr. Nunda says that they appear became very rare and should be protected. Law took two individuals yesterday, July 6th. That were not quite adult and he was able to secure some skins from them. We found them fine eating.

About Ten we left for the Flats. Law was kind enough to offer to take me down to Rucker Canyon. Mr. Stone accompanied us. We loaded Hamlets and my outfit on the truck body of Law's Ford, Law driving with Stone beside him and I sat in the open side door at Mr. Stone's feet. With this

guns and our general outfitting
for an appearance was quite formidable.
A watch, a head or two of specimens and
the whole outfit with my gun projecting
resembled our "armored" taste.

We stopped at J. Hands ranch and
I talked with him for a few minutes.

I and here we went a short
to the Starks ranch where I found mail
for me. Mr. B. F. Starks informed me that
Parrots had come down during the winter
into the hills opposite this ranch. This
was coming the foothills of the Chiricahua
range at an elevation of about 5500 feet.
The birds had not come around his
ranch. There had been no damage by
them to grain at this time either
on this place or adjoining ranches.
Reports come periodically that Parrots
are still present at the head of
Rucker Canyon and it is there that I
am going to investigate.

From this place we crossed
directly to Light, a Post Office and store
on the Cloud County about 12 miles
from the mouth of the Canyon.

The day was clear and the view beautiful. The Mex Cabezas and the mountain ranges showed up clear [illegible] in the distance forming a background for shifting mirages of gentle slopes and rolling hills of flat [illegible] prairie under encouragement of the Lamb. One or two small hills were studded with beautiful cereus coming into bloom. Turning south Bonaud Kite we crossed a dry wash where we had lunch under the oak (3 specimen). The desert willow with its slender narrow leaves was common.

White necked Ravens were common along and were nesting in yuccas. I killed one for each of us and also secured two Swainson's Hawks one for Hand and one for Stan. A small spotted somewhat bushy tailed spermophile was fairly common and I killed one outside of Light.

At Light I mailed some specimens and purchased a few supplies for use in the field. Here I met Warren [illegible] Jordan who was in school at K.U. when I was there. We had a good talk for an hour

minutes and then we went on.
Talbot killed a Rattler my first specimen of the Canyon Journey.
We took a wrong road in the road to Pucker Canyon but went astray in a tangle of roads that went nowhere and did not get on the right track until nearly six. About six thirty we came to the Moore ranch in White Water Wash. A heavy storm was coming up and we stopped here and ran the car in beside the barn and had supper. There was no one about but later a neighbor who was taking care of the stock during a temporary absence of the man in charge came in and gave us permission to sleep in the hay barn, a welcome shelter as rain was threatening.
Lew and Stone put out a fire before it burst.

July 8, Tuesday.

The ranch man returned last night and we had breakfast with him this morning. We worked for two or three hours on specimens secured yesterday and then packed up and

moved us. This ranch is in a dry locality and has flats covered with mesquites surrounding it. We saw typical bank swallows species as Rhaingopteryx serripennis Hylocichla ustulata and Riparia riparia.

From here we travelled on up Rucker Canyon; this Canyon floor is broad and the hills on either side low. The appearance of things is different than in Bisbee Canyon. Oaks and junipers formed a fine grove growth on the valley floor & grape was abundant and we found the Cottonwoods (apparently P. wislizeni)

The Ford was not pulling well so that at the Wilkes Ranch (rendezvous by J. Olmstead) we stopped and made arrangement to take the car up to the Rucker Ranch with a wagon. Mr. Lewis was kind enough to bring this for without expense other than [illegible] and it that I purchased for him in Tucson.

We had lunch at Olmstead's place. We noticed here is very bad in potatoes and water melons, frequently stripping the leaves. The insects congregate in small areas in great numbers apparently to find

They were killed by coal oil emulsion. Under a Bergen plan to thus treated & found from 200 to 300 of the insects.

Mr. Olmstead said that the Camping parties did much damage in Corn fields and to other growing. The Canyon Towhee did considerable damage to gardens and also robbed nests by getting hens. Frequently they entered hen houses to steal eggs. Similar complaints were made against these two species by a rancher (name unknown) who had a small place up the Morris in the foothills of the Siwash Mountains.

Parrots were not known this far down.

We left here in a wagon and traveled up 9 miles to Doan's Ranch where I was given Quarters by Mr. B. Ray.

The Canyon floor still continued broad with low hills on either side we saw the Chaparral Pine and the Yellow Pine and oaks and junipers were abundant. The road was rough but not bad. The Doans Ranch is said to be at 5500 feet altitude.

Mr. Stein and Mr. Lowe left me here and I was sorry indeed to see them go. The week that I have spent in their company has been pleasant indeed and companionship with Mr. Stein especially has been a privilege that I shall long remember.

It was cool and pleasant here. I went over some specimens that I received yesterday and then worked at notes until dark.

Chordeiles Virginianus was [illegible] and was calling and booming.

July 9, Wednesday

This morning I was up at six and found it cool and pleasant. Worked on notes and straightened out my insect collections for an hour and then had breakfast. Left immediately after for the farm of Theodore Hampe. Mr. Hampe was very kind in giving me all information available concerning the parrots. He has been here for thirty years in this canyon and is well acquainted with the whole country.

His ranch property was formerly Camp Rucker: ~~old~~ stands on a low flat above

Rucker River. The Ranch house was formerly the commissary while the Captains Quarters is one roomed structure at one side is as it was formerly save for the addition of a porch. The log barracks that formerly housed the Soldiers has been moved and cut down and made into a barn. The bakery and a grain store complete the remaining buildings. The old Sutlers store across the Creek has been partly demolished. I was able to secure some very good photographs of the place and hope that they turn out well.

With Mr. Kemper I visited a few ranches belonging to F. Heinz a few miles and secured additional information on parrots. Mr. Heinz has serious trouble with Black-headed Grosbeaks in his apples but otherwise has little damage from birds.

On the White-water River I noted a few minnows and Mr. Kemper took me to a sycamore spring where in larger

pools & collected several minnows of fair size. It is difficult to find fish in the main river because of the frequent floods that wash them down. The fish were found in small pools in company with a few tadpoles.

At the Forest Ranger Station I met Mr. Bellah and Mr. Johnson forest guards who had just come from above.

Returned to the house at 12 o'clock collecting a few juvenal Pezinga [illegible] on the way. Prepared a little lunch as every one was away and then went out and collected insects by beating for an hour.

Returned at two-thirty and worked until five on notes and then prepared some specimens. Continued work on notes after supper.

At Hamfis were a number of land turtles in a small pond. They swam about

and Dove exactly like water turtles seeming to enjoy the water greatly. Bellbirds coming in here more saw only a dozen between light and the mouth of the Canyon. It had rained heavily and the turtles were in small pools along the road. When we passed they scrambled out on dry land and then remained quiet seeking to hide.

July 10, Thursday.

This morning I left at 6:20 to climb Monte Vista. The ranch house here is at 5500 ft and the top the mountain is over 9000. The trail up to 7500 ft wound up over rocky slopes grown with small oaks. There were then was much pine, (yellow and Chihuahua) The growth in many places was rather thin but several heavy stands were encountered. For about four miles the path led along these high ridges so that I had excellent opportunity to search for high coming birds.

BIRD MAN HERE

Weekly Press Letter, Tucson, Ariz. July 11, 1919. (Univ. Ariz.)

There is an expert bird man in Arizona. Not the kind that we see sailing in the Curtiss biplane but a man who is versed in bird lore and knows the ways of the feathered family.

This man is Alexander Wetmore of the U. S. Biological Survey, who has come to Arizona from Washington to study reports of bird injury and bird life.

Mr. Wetmore visited the University a few days ago and told of his studies of the white wings which had been reported to be doing damage to wheat fields. His investigations showed that the damage was not great where wheat was harvested and stacked or threshed promptly, and he believes that the white wing is a greater friend than foe of the farmer.

He will visit the Gila Valley, where farmers have reported to County Agent Ballantyne that certain birds have been destructive to field crops or orchards. He has already visited a number of the counties with the agents. This week he is camped up in Pinery Canyon, in the Chiricahuas, and from his camp he has just tramped on foot over the summit of the range to Paradise, studying birds as he went.

Mr. Wetmore was an Ornithologist who was assigned by the Biological Survey a few years ago to study the migrating habits of birds. Mr. Wetmore captured 1,000 ducks along the Great Salt Lake in Utah and placed band markers on their legs before liberating the birds. This was in 1914 to 1916 and about 175 of the number have been killed by hunters and the bands sent to the Biological Survey at Washington. These ducks were killed as far south as the Mexican line and as far east as the Mississippi River.

One hundred snowy herons were also marked and liberated at Great Salt Lake. One of these was killed in April of this spring near Willcox, Cochise County, Arizona, and two others have been killed in Central America. These and other records of migration show the reason for treaties between the United States and other countries covering the killing of birds of migratory habits. Some of the injury reported by birds in Arizona is done by migratory birds passing through, which injury is neither serious nor long continuing.

While at Tucson Mr. Wetmore discovered several of the bronzed cow birds in trees in the park near the depot. The bird had not been previously reported from this section. The male is a glossy black bird with red eyes. The birds were nesting here, depositing their eggs in the nests of other birds, which hatch out the cow bird eggs with their own.

Though not abundant birds still seem more common than on Mount Ida or Boarfoot Peak perhaps previous collecting had been done here. I saw Mexican Cicadas and Cones Agelaius in several places and heard the singing of the Olivaceous.

On the North slope of Mt Vista was a fine growth of Pine and Fir. A few Ceanothus in blossom here and there a few minutes I had filled my cyanide bottles with Diptera flies and Hymenoptera.

I went on to the rock point Mt Vista and then returned to the lookout tower which I ate lunch. From here there was a broad view of the surrounding country. Storms concealed much of the low lands.

From my saddle elbow here I had a sight of Cordova Head and could overlook the country where I had worked above Piney Canyon.

Rock Squirrels and Chipmunks were fairly common and a few Townsends White-tailed Deer. Tracks of deer were

over on all of the slopes.

In returning I came down the steep south slope of Monte Vista until I reached a small Canyon opening into the main Rucker Canyon. I reached the ranch house at 6:00 P.M.

Many Scarabaeids were flying this evening. They seemed especially active around the juniper trees. Some of them belonged to the genus Polyphylla though the genus was not represented.

July 11, Friday.

Had a severe attack of indigestion last night due to stale grease used in cooking and so did not feel very active today.

Spent the forenoon in working on specimens and the afternoon in writing up my notes. I was able to get these down to date for the first time since entering the mountains.

Two evenings ago I saw a large bat here that showed a broad zone

elongated interfemoral membrane. A pair
kited about rather high in air.
This evening I went out to try and
collect one but was unsuccessful.
One was seen. At dark two bats
that were of large size and very pale
above came about me but it was
too dark to shoot.

By imitating the peculiar whistled
call of a Cruck that I called one up
and shot it. It proved to be a fine
male Otus x. Cineraceus. This owl
has an entirely different call from
the tremulous notes of the eastern
bird as it has above the quickly
repeated whistled notes of the
The note of the original settler here at the
Coyote Ranch, an individual known as
the hermit, came in ten thirty million
times 30 or 40 years ago. As protection
against attack he drove a tunnel
about high and about 5 wide for
nearly 100 feet through the front
of stony gravelly hill- on the crest
of this tunnel he made a slight mound

to the right and then a right angled turn after which the tunnel went on straight again. At either end he constructed [illegible] little houses. The center of the tunnel was absolutely dark ~~but~~ because of the turn there but a man standing ~~there~~ in either end could see plainly any enemy entering behind him and kill him with ease. Construction of this

hole must have been laborious as large stones were embedded in a gravelly soil the whole being apparently a deposit from river wash.

July 12, Saturday.

This morning I walked up the canyon of the White water for about six miles. The heavy rains are raising the level of the stream constantly. As I went higher up I found small waterfalls and read one of them that I dipped but lost it.

The character of the vegetation was about as I have described elsewhere. Oaks covered the slopes and walnut and sycamores grew in the bottom of the canyon. I collected all through here

Chihuahua and Yellow Pines. The Apache plume made a low undergrowth.

I kept careful watch for Myiodynastes luteiventris but saw none. Apparently the sycamores are not abundant enough and do not grow large enough to furnish it a suitable habitat.

Birds were fairly common but I secured nothing of great importance save a juvenal Scott Oriole.

At noon I returned.

At 2:00 P.M. Mr. Ray drove me down the canyon to Olmsteads ranch. As the lady of the house elected to go alone I had perforce to take a seat in my chief. The ruts had washed badly exposing the stones, the road had been hilly so that the mules trotted and on the whole it was a rattling bouncing gut-shaking journey that I did was glad to see ended. We reached Olmsteads Ranch at 4:30.

Here I met R. Winkler and his wife

Hicks & forest service man and secured some additional information on parrots from them.

Following this I walked out and collected one or two birds. Discovered the nests of the arizona Wren and Palmer's Thrasher and collected eggs.

This area at the mouth of Rucker Canyon and is at the point of intergradation between Upper and Lower Sonoran Zone. Some of the Warmth loving trees grow to 30 or 35 in diameter. Bush titis, Mockingbirds, Palmers and Crissal Thrashers were common and I saw Desert Sparrows, House Finches and Wood Pewees in abundance.

In the evening I cared for a few birds by lamplight.

July 13th Sunday.

Last night I slept on a bed spring suspended by wire from the limbs of a Sycamore. A great chorus of Wood Pewees, Mockingbirds and Orioles awakened me this morning and among others I heard the clear whistle of the Texas Meadowlark. One Plumbeous Vireo had a peculiar twist to his song and I shot him on suspicion

that he might prove to be Vireo Vicinior.

At noon Mr. Olmstead and I left for the railroad travelling by team and wagon. I stopped at intervals to to collect birds, lizards and plants. Heavy rain storms came on south of us but we managed to escape them though it seemed at times as though we were in for a soaking.

We travelled out past the Moore Ranch then turned South to Light where we stopped for a belated lunch. A package of crackers, 1 can Libby's Beef, 1 small (shotted) can of beans, 1 can of peaches and a small chunk of cheese cost me $1.55: We ate the whole for lunch save part of the cheese which was too hard to negotiate so that we turned it over to a stray pitch dog. As she had no traditions as to the necessity of chewing food before swallowing she bolted it whole and thus solved the difficulty. I talked for a time with Warren Gordon and I we left them going directly west to Pearce. The Way at first took us across

An open flat after which though we travelled in the main in the level we were passing among tall conical hills.

A box tortoise (Terrapene ornata) was fairly common through here. and I picked up eleven and carried them along. I had supposed that they were young Testudo but below now that they are a Terrapene after more careful observation. Several of those taken seemed fully adult and I took one pair in copulation. The male, mounted on the back of the female had thrust his feet within her carapace behind her thighs where she held him fast by closing down with her shell. As I came up he withdrew his pins and attempted to escape but was held fast. At this the female took alarm and waddled off with her spouse sitting bolt upright and dragging along behind a ludicrous spectacle.

The eye in the male was dark reddish brown, in the female pale yellowish brown. One small individual half grown was seen sitting in front of a hole under a tussock of

grass from which the animal had just emerged. All of the turtles had the bladder filled with water. The rains have called them out and made them more active. Our was seen in a upland desert area. When we handled the turtles they opened their mouths and bit at us but were not very quick. I have some remembrance now of reading of a box turtle carrying water into South eastern Arizona. At any rate it would be an interesting species.

In the small wash I heard four Texas Orioles and heard their familiar call notes.

We reached Pecos at 9:10 P.M. and secured quarters in the Palace Hotel. There was no livery stable at which we were able finally to get Mr. Penrod to give us a bale of hay. This made food for the horses as we were able to put them in a yard behind the blacksmith shop. For ourselves however we were forced to be content with what we could buy in a small cafe &c.

July 14, Monday.

The clouds were hanging low this morning and shortly after 8:00 a.m. a slow drizzle started that lasted until night. The downpour was not heavy but was so steady that considerable water fell.

I had birds insects and plants to care for and did that first of all. Also boxed up my turtles Calvin sending nine to Hollister at the National Zoological Park and two to Bunker at Lawrence.

Received some mail this morning and a box of communications by express. My field glasses came also and I am very glad to have them.

Turned in my June expense account here and sent it in and also forwarded a brief report of recent work.

Spent the entire day in notes, care of specimens.

In the afternoon I received word from the office to suspend all expenditures as the appropriation bill had been vetoed. As the best I can do for accommodations

in Pearce is $3.00 per day & began immediately to arrange & get out some hay in the country where it was not so heavy. Finally made arrangement & go out to the Cochise Stronghold Ranger Station in the Dragoon Mountains 15 miles West.

July 15, Tuesday.

The sky cleared today though it was still very damp and wet. I packed up some specimens and sent them in and then cleaned up my outfit. At 10:30 I left in a Ford car for the Cochise Stronghold Ranger Station. Roads had washed badly but we had no difficulty. The same open flat as around Pearce at the base of the mountains. Here we turned in through a narrow canyon mouth where the road ran directly ~~east~~ along the stream bed and turning the point were in Cochise Stronghold, a long valley in the hills. The Ranger Station lay at 4800 feet in the ~~mouth~~ lower end of the valley. The

Ericson Ranger took me in and gave me a room in the Barn. Arrived at 11:30 a.m.

Began at once to unpack and was soon settled with my bed on a spring cot and my chest against the wall opposite.

I spent the afternoon in working on my notes, after getting settled and brought everything down to date.

Above the station here is a tremendous ledge of granite a thousand feet high or more that is thrust out in smooth worn edges that are very impressive.

Did some washing this afternoon also and took a bath. Collected several interesting insects and some seed specimens. Have track of snow in this canyon two years ago.

Company came in the evening so that I had to sit up until ~~eleven~~ the thirty though I could barely keep my eyes

July 16, Wednesday.

It rained during the night but was fair this morning. It was cool and pleasant all day.

After a rather late breakfast I got out and followed north along the base

the rocks until it came to a deep but narrow canyon with walls thinly set with trees. In this I found a Broad-billed Hummer and spent most of the forenoon watching for others. In the end I had four nice and secured another Mexican Chuck Will in addition.

This birds occupied me during part of the afternoon following which I collected insects by beating on oak and mesquites. Insects were not abundant but I secured some good things.

Hackberry is common here and there is some ash. A large wild black cherry grows in some places along the base of the cliffs and produces quantities of fruit. Also found a small mulberry.

Mrs. Smith's above here has a small peach orchard. Birds, apparently house finches were working in it badly until the raisins started but I saw not over 20 trouble some ones. Rock squirrels also had eaten many peaches. These animals also destroy the trees

In addition I did some work on official correspondence.

A heavy rain came on in the late afternoon but passed on the plain though we had much rain in the evening.

July 17, Thursday.

This morning I followed up the canyon to the summit of a pass leading over into the western part of Cochise Stronghold at an elevation of about 6200 ft.

A great bed of granite, eroded into curious forms cuts through here with more rounded hills on either side. The slopes everywhere are rocky and in many places quite steep. The canyon in which the Ranger Station is located is known as Cochise Stronghold. This canyon extends south and then sweeps around a rocky point to the northwest to a pass leading down into a canyon on the West side, which is also known as Cochise Stronghold. My collecting was done all on the eastern side.

The slopes here are grown with oak brush. Some White Leaved Oak Quercus but is not abundant. Cedars are

fairly common and Pinyons occur in fair numbers on the higher slopes. Sycamores, Walnut, Hackberry and Ash grow along the streams. Pine timber is very large. Road Edges project over the edge the slope so that travel was somewhat difficult.

The mouth of this Canyon is rocky & moran. The bulk of the mountains are in Upper Sonoran with somewhat Lower Transition zone along their summits.

The streams here carry run-off water only from storms and are not at all permanent a fact that accounts the absence of certain species of birds that I had hoped to encounter.

Returned to the Ranger Station at four with a number of birds to care for and worked on them until dark.

Mr. Neil Ericson Ranger here tells me that there is an extensive cave ten or twelve feet wide and as high in Wrights Canyon in the Chiricahuas. It has been explored back only for about 100 feet.

July 18, Friday.

This morning I worked on notes until breakfast and then went on down to the mouth of the canyon. Here the lower part of the canyon are long slopes grown with Yucca and mesquite. Towards down these growths are confined to low areas along the washes. Stony hills were covered with Opuntia and flat pad cactus.

I killed a great Horned Owl and in one of the large Sycamores along the stream and was surprised to find the Verdin in the mesquites. This entire region is cool for western.

On leaving the canyon I started to went first to Carlisle Canyon to look for Hummers but did not secure any though I saw the Rufous and Broad-billed. I stopped in and talked to Mr. Hamm regarding the occurrence of parrots here in the Chiricahuas, getting a definite record for them.

In the afternoon I worked on specimens etc. Insect collecting is good here, and I have taken some fine things.

In the evening I visited Buckley's Orchard. He has about 60 acres in peaches.

House 5 inches. Give some trouble but are not so bad now as when the rains started. Grass rank. Time that one is now will not require attention. One adult female bear 5 inch. That I killed near the Wash. Half a mile from the Orchard had the throat filled with fruit pits.

July 19. Saturday.

This morning I made attempts to get down to the railroad but was unable to do so. Mr. Erickson, the forest ranger agreed to take me down tomorrow so that I was forced to be content with this.

I took several photographs early this morning and then followed out through a small Canon South. At the head of this I climbed over a low pass to a canyon leading down toward Midland. And then ascended this canyon nearly to the rim. The canyons on this side are less rocky and have more of a loamy soil. There was no running water in. I found some Ribes in this Canyon and much more of the

Thus 20 That the country had a different appearance.

Low scrub oaks and a few small pinyons and cedars make up the trees. All are of small size ranging from four to fifteen feet tall. Cactus are abundant and one in bloom and I saw a few magueys.

On the east pass was scattering scrub oaks interspersed with clumps of Bear grass. I searched here for cystoryx but was unable to find them.

At noon I climbed up a canyon following a pipe line in search of water but could find none. Finally I dug a deep hole in the sand and secured water in that way.

On my return I climbed over the gentle slopes at the head of the pass and came out on the face of the mountain looking over the Sulphur Spring Valley. The scene was one that I hope I may long remember

The heavy rains of the past two weeks have ceased the atmosphere is so that I could see other mountain ranges clearly. Far in the north loomed the huge bulk of the Sahanas. Below them came the Dos Cabezas, the split rock in the peak of that name showing as a bright spot, then Apache Pass, the great length of the Chiricahuas and finally at the south the pale colored barren bulk of the Swisshelms. From my vantage point I overlooked the area in which I have been living since from Mount Glen and Bonfort Peak far to the east and North Vista at the south were plainly visible. Between them came the higher bulk of Chiricahua Peak. Small fluffy clouds filled the sky making a dappling of shadows over the broad plain. Wherein I could see Pearce and farther East the little settlement of Light. These mountain ranges, particularly the Chiricahuas have an appeal difficult to define. Possibly it comes to the

Naturalist because of the species from the Mexican Fauna that range [illegible]

On my way down I stopped at the Rockfellow Ranch and secured further corroboration of the former occurrence of Parrots.

Packed the Tanner Station at 4:30 and worked until dark in caring for specimens.

July 20, Sunday.

This morning the sun shone clearly and during the day it became quite warm. I worked for a time in early morning on notes and then started in to pack up. As my outfit has not been completely packed for three weeks this required more time than usual and in addition I had a good many specimens to prepare for shipment.

At 2:15 I left with Neil Erickson in his auto for Pearce arriving there at 3:15. Distance twelve miles.

At Pearce I shipped four parcels

to the office by express. The train arrived at 4:00 and I climbed in expecting to start at once. I entered the caboose but a switch and we did not leave until 5:10. At Fulton I transferred to a mixed train on the ~~Atlantic~~ Coast El Paso & Southwestern and finally reached Douglas at 8:10.

Registered at the Gadsden Hotel. Cleaned up a bit supper and then read for an hour or two before going to bed.

July 21, Monday.

This morning I awoke at 6:30 and after breakfast began work on notes and official correspondence until noon. After dinner at one I went to the library to look up some back files of Douglas newspapers for information in Parrots. Also visited the office of the Douglas daily International for the same purpose. The entire afternoon was occupied by this

amusement without finding anything. I am forced to conclude that there is nothing in the reports to the effect that parrots have damaged grain.

On the evening I walked out south to the U.S.-Mexican Boundary which lies half a mile south. Here I found a twelve strand Barbed Wire fence six feet high set on steel posts with cement supporting pillars at short intervals. A hundred feet away in the Mexican side was an old trench system. On our side we had paralleled the fence and though there were no embankments there was up to date that a drainage ditch six feet deep had been dug just inside the fence.

I walked in alone to the Customs office at the gate and the gentleman in charge there kindly gave me a pass that permitted me to cross. So that I was able to spend an hour in walking

about Agua Prieta in Sonora.
The houses were built of adobe
bricks or ~~plain adobe~~ were smoothly
plastered with adobe and were
placed immediately adjacent to the
street. All were low and flat
roofed. It was that the streets were
deader the town looked like any of
the villages seen in Porto Rico in 1912.
Small stores scattered about were
operated mainly by Chinamen. I
bought a lemonade in a drugstore
for fifteen cents. (Made with one
lemon and about a quarter of
a pound of sugar. One troop
of twenty-five men gathered near
a small hotel had evidently come
in from the south on horseback.
Their horses, poor in flesh and of small
size were in the corral, which
the men lay about on the ground
leaning against their saddles. I
had the impression that they
were soldiers but no arms showed
and they were not in uniform.

Near a cafe was an old crowd of young men, one of whom played a guitar while and this sang a song regarding the different ways of americanos and Mexicanos. For my benefit he sat sneering at the phrase americano. A sentry armed with a rifle on this corner walked back and forth pausing at intervals to look impressively into the distance. My regret was that it was so cut that I saw no bicho

July 22, Tuesday.

This morning I packed my outfit attended to some correspondence and straightened out some odds and ends. In order to purchase a box of 32 automatic shells I had to secure a permit from the intelligence officer here.

Left Douglas via E.P.S.W. Ry at 1.40 P.M. Arrived at El Paso at 8:35 P.M. In El Paso I walked over town, remaining for an hour and then returned to the depot.

Large numbers of a Circendelet

were flying about street lights, alighting on the pavements and running about with great swiftness. In the dim light they appeared like Cockroaches when on the ground. Collected survey.

Left El Paso via Southern Pacific at 10:30 P.M.

July 23, Wednesday.

Was out this morning at six and spent the forenoon in watching the rough broken country through west Texas, a new region to me.

A Barn Owl was seen flying over a cottonfield in the evening near Camp Kelly (San Antonio).

The train laid over in San Antonio for 3 hrs from 8:30 to 11:30 P.M. I walked over town for exercise and then returned at two and went to bed.

July 24, Thursday.

Up this morning at six near Houston Texas.

After leaving Roanoke, La. I saw many Nighthawks resting on fence posts

Several Gray Kingbirds were seen
on telegraph wires.
Red Winged Common.
Arrived in New Orleans at 6:55 P.M.
Made the usual hasty transfer
across town and left on the L&N
at 8:00 P.M.

July 25, Friday.
Awoke this morning in
Montgomery. Saw my first Crows
today.

July 26, Saturday
Arrived Washington 9:45 A.M.